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CORAL FISHES OF THE FAMILY

POMACENTRIDAE

From the Western Indian Ocean and the Red Sea

by

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Illustrations by Margaret M. Smith

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For valuable information and the loan of types we are greatly indebted to Dr. J. Guibe, of Paris, Dr. W. Klausewitz, of Frankfurt, Dr. Giles W. Mead, of Harvard University, and to Mr. G. Palmer, of the British Museum. To my wife I am indebted for the tremendous labour involved in preparation of the extensive illustrations in this group, as well as for constant assistance in the problems involved in this review.

CORAL FISHES OF THE FAMILY POMACENTRIDAE

from the

Western Indian Ocean and the Red Sea

(With Plates 26-33)

by J. L. B. SMITH

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Fellow in Ichthyology, Rhodes University, Grahamstown, South Africa.

Local names in the Western Indian Ocean: Red Sea; SCHARAM. Italian Somaliland; SHIRISHIRI, BUNSHILI, L'YUNUSS RASHIDD. Zanzibar; KIPEPEU, KIYAKAZI, NDUZI. Tanga; BAZI. Pinda (Moz); NIPATE. Seychelles; BOETEUR (DU SABLE, NOIR, BLEU, etc.), MARMITE. Mauritius; COUS COUS, DEBOUETTER, BOETEUR. Comores; SOUMPI, SOUMPOUI, DAOU, GOALE.

Compressed body, ovoid to almost orbicular, covered with ctenoid scales, usually extend on fins. Lateral line divided, the upper front section of tubular scales, curves up more or less parallel with dorsal profile and usually ends below soft dorsal. The hinder lower lateral line along peduncle, usually of obscure pores. Snout usually short, rather blunt. Mouth small, little protractile, teeth conical or compressed, uniserial or in bands, outer series sometimes enlarged. No teeth on palate. Lower pharyngeals fused to a triangular unit. Gill opening unrestricted, $3\frac{1}{2}$ gills, pseudobranchiae present. A single nostril each side. A single dorsal fin, with IX-XIV stout spines, spinous part longer than soft. Anal of 2 spines, the first much shorter than second, soft anal similar to soft dorsal. Caudal forked to emarginate. Fins except pectoral often filamentous.

Small fishes, neat, shapely and compact, some quite small, ranging in livery from uniformly sombre to some of the most exquisitely and brilliantly coloured creatures in the sea. They occur mostly in the warm parts of all oceans, usually in and about coral, in parts in vast numbers, sometimes hovering in clouds of countless numbers close to steep coral faces and about coral heads. Some appear to live in shallower water among weeds. A few are known from almost fresh water. Extremely active swimmers, most are timid and shy, only a few of the larger species do not easily show fear and swim in clear view about piers or in pools. Although small they occur in such vast numbers in the Western Indian Ocean as to be of importance to the natives as food. A few of the larger species are taken with tiny hooks, but most in traps, not many in nets. They are so wary and timid and so difficult to catch by other means, that in order to gain adequate qualitative and quantitative knowledge of local populations the scientist is compelled to use poison and explosives. Coral fishes are very sensitive to rotenone and are among the first to appear when that poison is used. When a bomb is thrown, they display great interest in the stream of shining bubbles ascending to the surface, and come in from all sides, dashing in repeatedly to snap at the bubbles. Most species are apparently more or less omnivorous, but some feed chiefly on marine plants, and bloat easily, so that preservative should be injected as soon as possible after capture.

Among these fishes are some that are most troublesome for the systematist, presenting problems in classification that are not likely to be satisfactorily resolved for a long time. This is the case with both drab, uniform species and also with those of more vivid hues such as the species of **Amphiprion** Bloch Schneider. Malidentifications are common and the synonymy of some species is involved. More than a hundred species have been recorded from the Western Indian Ocean, but in this review 68 are recognised. Of these 8 are described as new, while at least 20 are apparently endemic there. Three known species, viz **Chromis analis** (C & V); **Chromis ternatensis** (Blkr); and **Abudefduf imparipennis** (Vaillant & Sauvage); not previously found in the Western Indian Ocean are now recorded from there. Further investigation will almost certainly increase the number of species known to live in the area. There are 88 illustrations covering 64 species. In a few cases no specimen or illustration was available. Types are in this Department.

The 68 species are divided among 12 genera as follows:

KEY TO GENERA

A. More than 50 scales. At least some opercles serrate:

I.	Preorbital and suborbital each with long retrorse spine	1. **Premnas**
II.	No long spine on preorbital or suborbital	2. **Amphiprion**

B. 40-50 scales. Most opercles serrate ..... 3. **Teixeirichthys**

C. 33-38 scales. Preopercle serrate. Heterodont ..... 4. **Lepidozygus**

D. Less than 33 scales:

I. Teeth conical or villiform, not compressed:

a. None of the opercles with spinose margins ..... 5. **Chromis**

b. Preopercle edge with spinules, sometimes also opercle and subopercle:

1. Body orbicular. Teeth in narrow bands ..... 6. **Dascyllus**

2. Body ovoid. Teeth in wide bands ..... 7. **Lepidochromis**

II. Teeth compressed, not conical:

a. None of the opercles with spinose edge, the preopercle edge may be rough, but is without spinules:

1. Lips with folds ..... 8. **Plectroglyphidodon**

2. Lips normal:

x. Less than 40 gillrakers ..... 9. **Abudefduf**

y. 70-80 gillrakers ..... 10. **Hemiglyphidodon**

b. Preopercle edge with a series of distinct spinules:

1. A separate group of enlarged teeth across the front of each jaw. Subopercle serrate ..... 11. **Pristotis**

2. No group of enlarged teeth in front of each jaw. Subopercle smooth ..... 12. **Pomacentrus**

1. **Premnas** Cuvier, 1817.

Type **Chaetodon aculeatus** Bloch, 1790. Ovoid body with small scales, 70-80 series. Mouth small, teeth incisors, one series in each jaw. Suborbital with a long spine, a shorter one on preorbital. Opercles serrate. D X 17-18. Lateral line ends below soft dorsal. Only the type, tropical Indo-Pacific.

PREMNAS BIACULEATUS (Bloch), 1790. **(Pl 32, L). Holocentrus sonnerat** Lacepede, 1803, IV, 344, 391 (Maur). **Premnas biaculeatus** Bleeker & Pollen, 1875, 85 (Rec.Maur). Sauvage 1891, 523 (Rec.Madag). Baissac 1953, 2 (Rec.Maur): and 1956, 332 (Rec.Maur). Not seen. D X 17-18. A II 14-15. P 1, 15-16. Upper L.l. 44-46. Gillrakers 7+13. Depth about 2, head 3-3.5 in body. Eye 4.5-5 in head, 1.4-1.8 in snout, 1.5-1.8 in interorbital. Suborbital spine about half head, reaches to opercle. Preopercle margin strongly serrate. 2nd dorsal spine, or 2nd and 3rd, longest, soft dorsal higher than spinous. Pectorals equal head, pelvics shorter. Caudal rounded. Predorsal scales end behind interorbital. Opercle naked, rough, striated. Cheek scaly, preopercle flange naked. Subopercle and interopercle scaly. In life stated to be orange or orange red, with 3 light yellow crossbars, the first curved, over head, the 2nd over middle of body, the 3rd, curved, over peduncle, these variable, sometimes short, only dorsal. Preserved, brownish, with same markings. To 150mm. Tropical Indo-Pacific, Mauritius, Madagascar, rare, not yet found in E.Africa.

2. **Amphiprion** Bloch Schneider, 1801.

Prochilus Bleeker, 1877. **Actinicola** Fowler, 1904. **Phalerebus** Whitley, 1929. **Paramphiprion** Wang, 1941.

Type **Lutianus ephippium** Bloch, 1790. Ovoid body with more than 50 series of small scales. Preorbital, suborbital, opercle, interopercle and subopercle with serrae. Hind edge of preopercle smooth or rough. Upper lateral line ends below soft dorsal. Teeth in a single series in each jaw, usually rather strongly conical. Dorsal with 9-11 spines.

The following sub-genera may be recognised:

A. Teeth conical. 1-3 light cross-bars. D IX-XI 14-18 ..... **Amphiprion**

B. Teeth compressed. No light cross-bar. D IX 17-20 ..... **Phalerebus**

Small fishes of the tropical Indo-Pacific, nowhere abundant, normally live a commensal life with sea anemones, sheltering within the stinging tentacles, apparently not harmed by them. This is one of the most difficult groups of coral fishes for the systematist as differentiation is largely by markings. From our observations of these fishes in the W.Indian Ocean not only do considerable changes in colour and markings occur with growth, but adults can vary widely in this way. It is clear that the erection of species on anything less than a graduated series of growth stadia and a considerable number of specimens is likely to lead to further confusion. Purely museum work on preserved material has led to the present state of complete chaos, which revisions like that of Schultz 1953 have only partly helped to resolve. With extensive collecting in the W.Indian Ocean, beside **akallopisos** Bleeker, 1853 we found numerous specimens of all stadia that, although they revealed considerable difference between extreme variants, we could not find reasons to regard as other than one species. The earliest name available for this species is **ephippium** Bloch, 1790 which our material indicates as showing considerable changes in colour and markings with growth, as well as wide variation in the adult form.

In all 14 species have been recorded from the W.Indian Ocean as follows:

1. **akallopisos** Bleeker, 1853. 2. **bicinctus** Ruppell, 1828. 3. **bifasciatus** Bloch, 1792. 4. **chrysogaster** C & V, 1830. 5. **clarkii** Bennett, 1830. 6. **ephippium** Bloch, 1790. 7. **fusciventer** Bennett, 1831. 8. **intermedius** Schlegel & Muller, 1839. 9. **mauritiensis** Schultz, 1953. 10. **percula** Lac., 1802. 11. **polymnus** Linn., 1758. 12. **sebae** Bleeker, 1853. 13. **trifasciatus** C & V, 1830. 14. **xanthurus** C & V, 1830.

Of these Nos. 3 and 8 are generally regarded as identical with No. 11, **polymnus** Linn., which apparently not occuring in the W.Indian Ocean represents malidentification. Our material indicates Nos. 5 and 14 as conspecific with No. 6, **ephippium** Bloch. Nos. 7, 9 and 13 fall with No. 4, **chrysogaster** C & V. No. 12, **A.sebae** Bleeker, 1853 has been recorded by Steindachner 1902(07), 166 from E.Arabia, and by Schultz 1953, 189, 197, Pl 9, F from Seychelles, but the illustration does not agree with the diagnosis given in the key on p.189. **A.sebae** is not impressive as a species and is not accepted as occurring in the W.Indian Ocean. Only four species are therefore recognised in the W.Indian Ocean and the Red Sea, viz. **akallopisos** Bleeker, **bicinctus** Ruppell, **ephippium** Bloch, and **chrysogaster** C & V, distinguished as follows:

A. (Subgenus **Phalerebus** Whitley). Body almost uniform yellowish, no cross-bars, a white streak along top of head. D IX 18-20 ..... 1. **akallopisos**

B. (Subgenus **Amphiprion** Bloch-Schn). Usually light cross-bars. D X-XI 15-18:

I. 3 distinct narrow cross-bars, last on peduncle ..... 4. **chrysogaster**

II. At most 2 distinct cross-bars, sometimes only one on head:

a. Always 2 cross-bars, none on peduncle. Juveniles with light body, adults dark, including peduncle ..... 3. **bicinctus**

b. Body always dark, 2 cross-bars in young, and peduncle light, centre of caudal dark, with age caudal light, 1-2 cross-bars, triangular light mark on peduncle ..... 2. **ephippium**

1. **AMPHIPRION AKALLOPISOS** (Bleeker), 1853. (**Pl 26, G**). **Amphiprion akallopisos** Bleeker 1853, 281; and 1877, Pl 400, fig 3 (E.Indies). Fourmanoir 1957, 202 (Comores). **Phalerebus akallopisos** Smith 1955, 16, Pl 11, fig 18 (Moz), and 1955a, 888 (Aldabra). D IX 17-20. A II 12-13. P 2, 14, 1. Upper L.l. 37-42. 6-7+12-13 gillrakers. Depth about 2.4, head about 3.2 in body. Eye 3-3.5 in head, about equals snout and interorbital. Pectoral 1.3, pelvics 1.5 in head, pectoral tip to near level of anal origin, pelvics more remote. A single close set row of incisors in each jaw. First and last dorsal spines subequal, little less than eye, 3-5th spines longest, 1.4 times eye, hinder soft rays little higher. First anal spine half of 2nd, shorter than soft rays. Caudal more or less rounded. Preorbital, suborbital, and hind edge of operculum all strongly spinose. Preopercle edge smooth or little undulate. 4-5 series of scales on cheek, flange broadly naked. Preorbital and suborbital naked. Interorbital scales to before front of eye. Live colour: more or less as Plate 26, G, varies from yellow to dark orange, usually a median white bar from snout along top of head and base of dorsal. Preserved uniform yellow-brown. Numerous specimens 40-70mm, Bazaruto northwards over whole W.Indian Ocean (except Seychelles), in coral, nowhere more than an occasional capture with poison or explosives. There are some variations in descriptions but I can find nothing to justify separation of my material from that of the Pacific. It is worthy of note that we did not find this fish in the Seychelles group.

2. **AMPHIPRION EPHIPPIUM** (Bloch), 1790. (**Pl 26, D & E, Pl 33**). **Lutianus ephippium** Bloch 1790, 121 (E.Indies). **Amphiprion ephippium** Arnoult 1958, 81 (Aldabra). As **bicinctus non** Ruppell,

1828; **clarkii** Bennett, 1830; **sebae** Bleeker, 1853 and **xanthurus** C & V, 1830 has been recorded over a wide area of the W.Indian Ocean. D X-XI 15-17. A II 14(15). P 2, 15-16,2. Upper L.1. about 40. Gillrakers 3+12-13. Depth about 2, head about 3 in body. Eye 3-4 in head, 1.3-1.0 times snout, in young exceeds, in adults 1.2 in interorbital. Preorbital depth 1.6 in eye in adults. Pectoral about 1.1 in head, reaches to or near anal origin. Pelvic about 1.2 times head, to or beyond anal origin. Stout conical teeth in each jaw. 3-4th dorsal spines longest, about 2 in head, hinder soft rays higher, edge of fin rounded. First anal spine less than half of 2nd which about equals eye, soft rays higher. Caudal emarginate. Preorbital with 1-2 small spines and one larger hinder spine projecting down over maxilla. Suborbital with 15-19 spinules. Whole operculum edge strongly spinose. In small young preopercle margin undulate, with growth becomes increasingly spinose, in adults with well developed spinules. Five series of scales on cheek, broad margin naked. Preorbital and suborbital naked. Predorsal scales to opposite hind eye, rarely few rudimentary scales in advance, interorbital naked. Live colour of most specimens as shown in P1 26, D & E, juveniles as in fig D, adults as fig E. The livery is highly variable. The dark caudal of juveniles as shown in P1 26, fig D becomes rapidly lighter with age, and the cross-bars relatively narrower. Some adults show hardly any blue on a yellow to dusky peduncle, some hardly any sign, some none at all, of the bar across the body. Preserved; the same pattern as above. The wide range in livery of this species parallels the case of **Premnas biaculeatus** (Bloch). 30-130mm, Inhaca northwards over the whole W.Indian Ocean, almost always living with anemones. Study of the fresh as well as preserved material from a wide range in the W.Indian Ocean indicates that only one highly variable species is present. The young are dark, with 3 light cross-bars, the last on the peduncle, and the centre of the caudal is black (P1 26, D); with growth the black on the caudal gradually disappears. Most adults are like that shown in P1 26, E, but some have only one short cross-bar over the head (**ephippium**). Almost all have a light caudal, rarely dusky, but the other fins vary from dark to light. The cross-bars vary in width and in their encroachment on the dorsal. It would be easy to regard individuals as distinct species, but complete intergradation was found between the extremes, i.e. **xanthurus** C & V, with three blue cross-bars and **ephippium** Bloch with only one across the head (see P1 33).

3. **AMPHIPRION BICINCTUS** Ruppell, 1828. (**P1 30, F**). Numerous records from the Red Sea. Described by Klunzinger 1871, 518. D XI 15. A II 14. P 2, 15, 2. Upper L.1. 39. Gillrakers 3+13. Depth about 1.8, head 3-3.2 in body. Eye 3.6 in head, equals snout, 1.3 in interorbital. Preorbital depth $\frac{2}{3}$ eye. Pectoral about 1.1 in head, tip reaches to level of anal origin. Pelvic 1.2 times head, to well beyond anal origin. Strong conical teeth in each jaw. 3-4th dorsal spines longest, about 2 in head, hinder soft rays higher, edge of fin convex. 1st anal spine less than half length of second, which slightly exceeds eye, soft rays higher. Caudal emarginate. Preorbital with one blunt spine in front and two larger behind pointing down over maxilla. Suborbital with about 15 spinules. Whole operculum edge strongly spinous, preopercle margin spinous. 5 series of scales on cheek, broad flange naked. Preorbital and suborbital naked. Predorsal scales to level of hind margin of eye, a few rudimentary in front, interorbital naked. Live colour according to Ruppell, body dark brown with two blue bars, first from nape over head, second across middle of body. Caudal, anal, pelvic and pectoral orange or yellow, spinous dorsal brown, soft dorsal yellowish. Preserved as shown in P1 30, F, this being one of Ruppell's types and hence faded, total length 100mm, from Massaua, Red Sea, kindly lent by Dr. W. Klausewitz. Ruppell reports that this species reaches 5 ins (130mm). Apart from the absence of yellow or light orange on the peduncle I cannot find any significant difference between this probably somewhat abnormally rounded specimen and mine from the Western Indian Ocean. Dr. Klausewitz, however, kindly informs me that the young of this species taken in the Red Sea have a yellow body and yellow caudal, none are like the juveniles from the Western Indian Ocean with dark body and dark caudal. In these circumstances, therefore, as Red Sea forms are often distinct, **bicinctus** is provisionally maintained, possibly confined to the Red Sea, not found in E.Africa or beyond.

4. **AMPHIPRION CHRYSOGASTER** C & V, 1830, 400. (**P1 30, J**). **Amphiprion trifasciatus** C & V 1830, 595 (Mauritius). **Amphiprion fusciventer** Bennett 1831, 165 (Maur). Telfair 1835, 358. Gunther 1862, 6. Bleeker & Pollen 1875, 85 (all Mauritius). **Amphiprion mauritiensis** Schultz 1953, 189, 196, P1 9, I (Maur). Not seen. D X 16-18. A II 13-14. Upper L.1. 35-42. Gillrakers 5+1+13. Depth 1.8-2.1, head 3.2-3.5 in body. Eye 3.3-3.6 in head, 1.2 in snout, about equals interorbital. Pectoral and pelvic subequal to head. Teeth uniserial, nearly conical. Interorbital scaling forward to between rear of eyes. 4-6 rows of scales on cheek. Preorbital with 1-3 spines, about 12 on suborbital. In life, according to painting by Pike, body mostly dark brown, but chest, belly, pectoral and pelvic bright chrome yellow. A white cross-bar over the head, second from end of spinous dorsal, third over peduncle. Vertical fins dark brown, soft dorsal and caudal with narrow light margin. Attains 112mm. Known chiefly from specimens from Mauritius, the type of **fusciventer** in the British Museum (B.M. 1856, 2, 15, 10), while 9 or 10 specimens were collected by Pike. Dr.

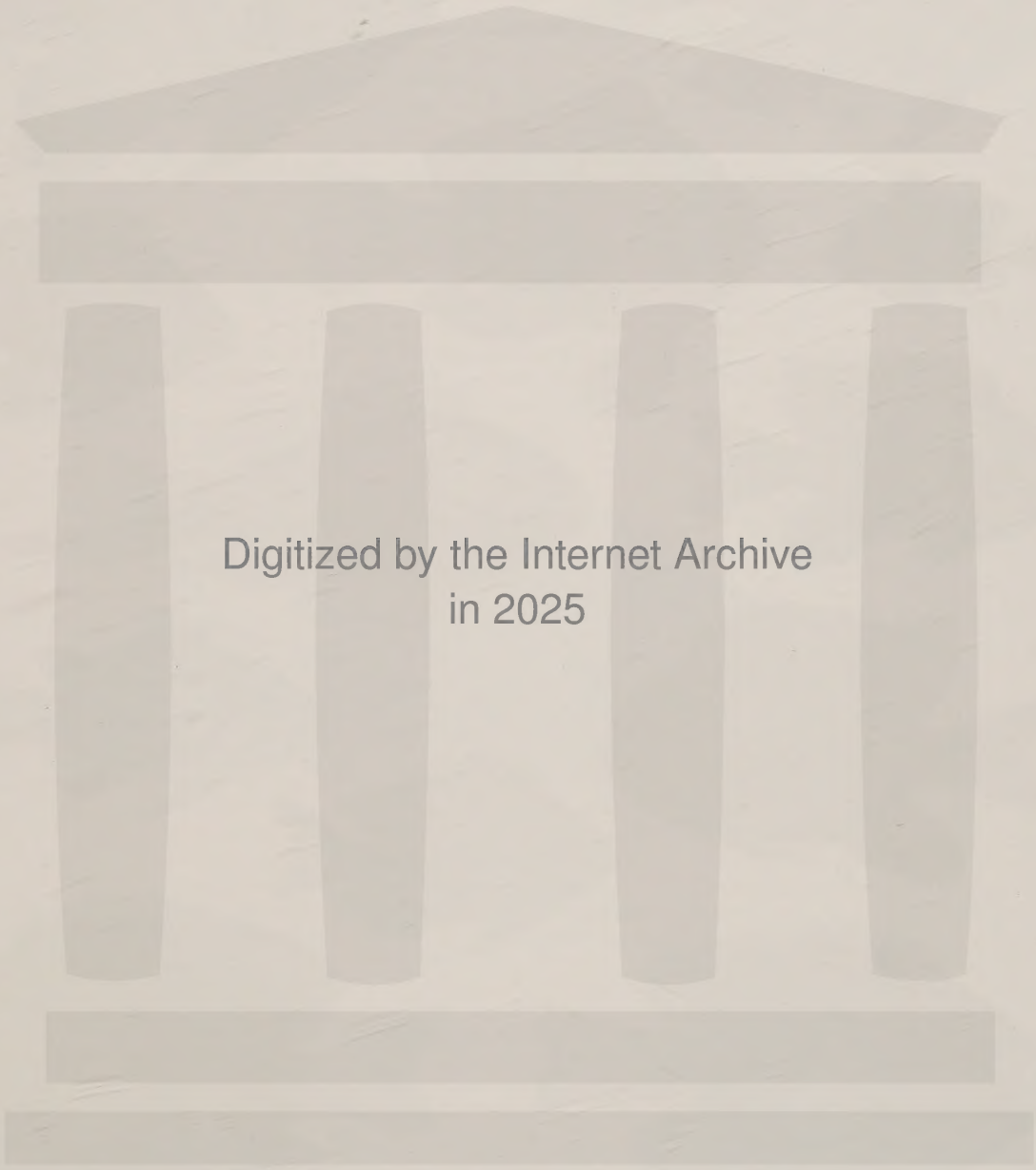

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PLATE 26

A. *Chromis agilis n.sp.* 70 mm. Zanz. B. & C. *Abudefduf dicki* (Lienard). B. 90 mm. C. 42 mm. Pinda. D. & E. *Amphiprion ephippium* (Bloch). D. 30 mm. E. 115 mm. Pinda. F. *Pomacentrus luteobrunneus n. sp.* Type. 115 mm. Astove. G. *Amphiprion akallopisus* Blkr. 70 mm. Pinda. H. *Abudefduf lacrymatus* (Q. & G.). 90 mm. Inhaca. I. & J. *Pomacentrus tripunctatus* C. & V. I. 40 mm. J. 55 mm. Pinda. K. *Chromis opercularis* Gnthr. 40 mm. Pinda. L. *Plectroglyphidodon nitidus* Smith. Type. 58 mm. Aldabra.

W. Klausewitz has kindly examined C & V's type of **chrysogaster** (Ile de France) and he informs me that **mauritiensis** Schultz 1953, based on a Pike specimen from Mauritius is certainly identical. **A.tricinctus** Schultz & Welander, 1953 from the Pacific is probably not different.

3. **Teixeirichthys** Smith, 1953.

Smith 1953, 13.

Type **T.mossambicus** Smith, 1953 = **Pomacentrus obtusirostris** Gunther, 1862. Elongate oval compressed body with about 45 series of ctenoid scales. Upper L.l. ends near end of soft dorsal. Suborbitals, preopercle, subopercles and interopercle serrate. Teeth incisiform, those in front enlarged and pointed. Only the type. Related to **Pristotis** Ruppell, 1835 but has more scales and more of the opercular bones serrate.

TEIXEIRICHTHYS OBTUSIROSTRIS (Gunther), 1862. **Pomacentrus obtusirostris** Gunther 1862, 24 (Loc?). Gunther 1866, 82, Pl X, fig 4 (Zanz). **Teixeirichthys mossambicus** Smith 1953, 14, fig 1 (Moz). D XIII 13. A II 12. P 2, 14, 2. Upper L.l. 29-31. Gillrakers 8+19. Depth 2.8, head 3.6 in body. Eye 2.8 in head, 1.7 times snout, equals interorbital. Preorbital depth 3.5 in eye. 6-7th dorsal spines longest, about 2 in head. Pectoral 1.3, pelvic 1.4 in head, neither reach level of anal origin. Caudal moderately forked. 4-5 scales across entire cheek to margin below. Scales on head to midway along interorbital. Preorbital naked, also snout. Dorsal and anal with few basal scales. Teeth compressed, across the front of each jaw 6 enlarged and pointed, side teeth uniserial, smaller. Live colour unknown: preserved yellowish brown, marked as shown in fig 1. One specimen, 115mm. total length, from 60 fathoms in the Mozambique channel at about 35°E x 25°S, the type of **Teixeirichthys mossambicus** Smith.

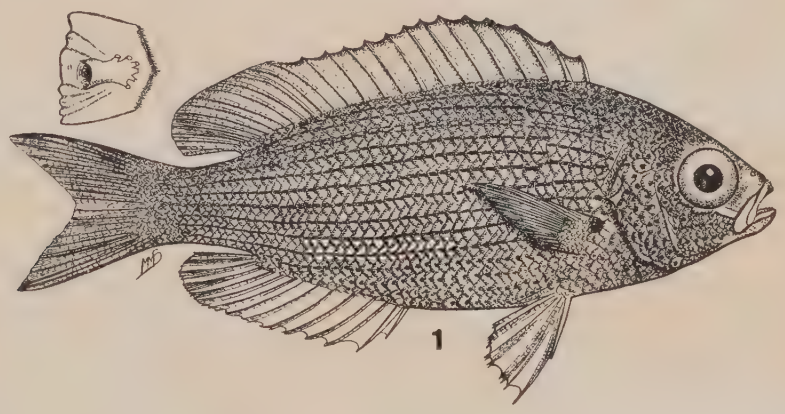

Fig. 1. **Teixeirichthys obtusirostris** (Gnthr).
115mm. Above 6th L.l. scale from left side 4.5mm.

4. **Lepidozygus** Gunther, 1862.

Gunther 1862, 15.

Type **Pomacentrus tapeinosoma** Bleeker, 1856. Elongate compressed body with about 35 series of ctenoid scales. Teeth conical in young, more compressed with age, those in front enlarged. Eye with marginal papillae. Preopercle margin serrate. Suborbital margin concealed. A II 15-17, first spine short. Only the type species, Pacific, and a closely related form from the W.Indian Ocean.

LEPIDOZYGUS ANTHIOIDES Smith, 1955, (**Pl 31, K**). Smith 1955a, 888, Pl XX, C (Aldabra). D XII 14-15. A II 15-16. P 2, 15-16, 5. Upper L.l. 19-20. Gillrakers 8+18. Depth 3.1-3.4, head 4 in body. Eye 3.4-3.8 in head, exceeds snout, 1.3 in interorbital. Preorbital depth 4-5 in eyes. 22-25 papillae on hind half of orbital margin. Chin more prominent with age. Incisiform teeth in single

series on side of each jaw. 5-8 subconical teeth in front of each jaw that enlarge with age and become flattened, larger than lateral teeth. 4th to last dorsal spines subequal, first 4-6 soft rays simple. Ist anal spine about $\frac{1}{3}$ of 2nd, soft rays lengthen to about the 12th. Pectorals barely to anal origin, pelvics to vent or beyond. Caudal lobes filamentous, more with age. Preorbital naked, suborbital margin hidden by scales. 5 series on cheek to edge of preopercle. Scales on snout to nostrils. Minute scales about eye. Alive as in Pl 31, K Preserved, more or less uniform slaty, pectoral, pelvic, hind dorsal rays and centre of caudal light. To 100mm. Bazaruto northwards in W.Indian Ocean, mostly in deep water off steep coral faces. This species softens and spoils rapidly

5. **Chromis** Cuvier, 1815.

Heliases Cuvier, 1830. **Actinochromis** Bleeker, 1877. **Hoplochromis** Fowler, 1918.

Type **Sparus chromis** Linn, 1758. Ovoid body with less than 30 series of ctenoid scales. Upper lateral line ends below soft dorsal. Opercles not serrate, preopercle margin usually smooth, sometimes rough, never with spinules. Teeth conical, in narrow bands, outer series enlarged. Dorsal with 12-14 spines, hinder usually shorter than front median. Rather small dainty fishes, circumtropical, usually about reefs and in weeds, rarely abundant. 14 species recognised in the Western Indian Ocean.

Key to Western Indian Ocean Species

A.	Second anal spine longer than soft rays, almost as long as head	Group A
AA.	Second anal spine not longer than longest soft rays	B
B.	Front lower teeth flare outwards. No basal scaling on dorsal and anal	1. **caeruleus**
BB.	Front lower teeth not flaring outwards	C
C.	Normally 12 dorsal spines	Group C
CC.	Normally 13-14 dorsal spines	Group D

Group A

Second anal spine longer than soft rays, almost as long as head:

A.	Caudal yellow or light, contrasted with darker body:	
	I. 12 dorsal and 11 anal rays. Anal dark basally, margin light	2. **pembae**
	II. 14 dorsal and 12-13 anal rays. Anal light with dark broad margin	3. **chrysurus**
B.	Caudal not contrasted with body:	
	I. D XIII 12	4. **analis**
	II. D XIV 14	5. **axillaris**

Group C

Second anal spine not longer than soft rays. Front lower teeth normal. 12 dorsal spines:

A.	Body abruptly divided into dark front and light hind part	6. **dimidiatus**
B.	Body not so divided:	
	I. Caudal not striped	7. **agilis**
	II. Caudal with dark stripe along each lobe:	
	a. Depth 1.8-2	8. **ternatensis**
	b. Depth 2.4-2.5	9. **nigrurus**

Group D

Second anal spine not longer than soft rays. Front lower teeth normal. 13-14 dorsal spines:

A. Depth less than half body length: 10-12 anal rays:
   I. Black mark down behind preopercle edge:
      a. Dark blotch behind opercle. P base with large dark blotch. Caudal more or less uniform. A II 10-12. Depth 2.1-2.2 ..... 10. **opercularis**
      b. Faint if any blotch behind opercle. P base at most dusky. Cd lobes each with dark broad stripe. A II 11-12. Depth 2.3-2.4 11. **simulans**
      c. No blotch behind opercle. P base light. Cd. lobes broadly dusky. A II 11. Depth 2.2-2.4 ..... 12. **xanthochir**
   II. No black mark behind preopercle edge. Body and fins uniform yellow brown. D XIII(XIV) 10-11. A II 10-11 ..... 13. **cinerascens**

B. Depth about 2 in length. 13 anal rays ..... 14. **cinctus**

1. **CHROMIS CAERULEUS** (C & V), 1830 (**Pl 28, D**, juv). As **Heliases** or **Chromis caeruleus** C & V, or **lepisurus** C & V, or **lepidurus** (sic), or **frenatus** C & V, has been recorded over a wide area of the W.Indian Ocean. **Heliases frenatus** Sauvage 1891, 436, Pl 28, f 1 (Madag). Jatzow & Lenz 1898, 519 (E.Afr). **Chromis caeruleus** Smith 1955, 17, f 20 (Mozamb) and 1955a, 888 (Aldabra). **Pomacentrus viridis** (Ehrenb) C & V 1830, p.420. **Dascyllus cyanurus** Ruppell 1835, 127, Pl 31, f 4 (Red Sea). Borsieri 1904, 215 (Red Sea). D XII 9-10. A II 9-10. P 2, 15, 1. Upper L.l. 16-17. Gillrakers 8+20. Depth 2-2.1, head 3-3.4. Eye 3-3.3 in head, 1-1.5 (juv) times snout, 1.2 in interorbital, 1.4 in postorbital. Preorbital depth $\frac{2}{3}$ eye. Pectoral equals pelvic, 1.2-1.4 in head. Preopercle edge concave above angle. Lower teeth flare outwards. 2nd dorsal spine usually longest, 3rd in juveniles, 2.2 in head. Soft dorsal higher than spines, 4th ray longest, 1.4 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is $2\frac{1}{2}$ in head. Soft anal rounded, 5th ray longest. Caudal lobes pointed. Preorbital and suborbital both scaly. 3 rows of scales on cheek, lower limb scaly. Scales almost to snout tip. Characteristic of species is lack of D & A basal scaling. Live colour as in Pl 28, D, preserved more or less uniform light brownish. Numerous specimens to 80mm from Inhaca northwards. **Dascyllus cyanurus** Ruppell 1835, Pl 31, f 4, has not the shape of that genus. One of Ruppell's types was kindly sent by Dr. W. Klausewitz, and proves to be **Chromis caeruleus** (C & V). Dr. Klausewitz has since confirmed that Ruppell's types are all this species.

2. **Chromis pembae n.sp. (Pl 31, E).**

D XIII 12. A II 11. P 2, 15, 2. Upper L.l. 16-17. Gillrakers 8+20. Depth 1.9-2, head 3.2 in body. Eye 3.2 in head, exceeds snout, 1.1 in interorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral 1.2 times, pelvic 1-1.2 in head. Preopercle edge concave near angle. 5-7th dorsal spine longest, 1.5 in head. Soft dorsal high in front, 2nd ray longest, 1.2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is longer than the rays and about 1.3 in head. Soft anal rounded, front rays longest. Caudal lobes pointed. Preorbital and suborbital scaly. 3 rows of scales on cheek, lower limb scaly. Scales to near front of snout. Colour, alive as Pl 31 E. Preserved brownish, end of soft dorsal, soft anal and most of caudal light. Dark patches along upper and lower margins of caudal. Pectoral axil dusky. 4 specimens, to 135mm, the type, 130mm length, all from Pemba. Related to **chrysurus** Bliss, 1883, but differs in dorsal and anal formulae and in markings.

3. **CHROMIS CHRYSURUS** (Bliss), 1883. **Heliastes chrysurus** Bliss 1883, 56 (Mauritius). Borodin 1934, 44 (Rec.Maur). **Chromis chrysurus** Baissac 1953, 2: and 1956, 334 (Both Rec.Maurit). Not seen. D XIII 14. A II 12-13. Depth 2 in body. Eye 2.7 in head, equals interorbital. 3-6th dorsal spines longest, little more than half head. 2nd anal spine longer than any dorsal spine, $1\frac{1}{2}$ in head. Caudal deeply forked. Dr. Giles W. Mead kindly examined the type and states **in litt**; most of fish dark, caudal peduncle lighter from before end of dorsal and anal fins, which are uniform in colour. Upper and lower two principal caudal rays dark, remainder of caudal dusky. According to Bliss 1883, 56: in spirits each scale had a green centre and a dark margin, tail and soft dorsal whitish, caudal fin yellow with upper and lower margins black: anal? light coloured with a broad dark margin, axil of pectoral black, a dark streak under the eye. This species does not appear to have been seen again since Bliss described it. It is clearly related to **Chromis pembae n.sp**. but that has D XIII 12; A II 11, and only black patches on upper and lower margins of caudal.

4. **CHROMIS ANALIS** (C & V), 1830. **Heliases analis** C & V, 1830, 496 (Amboina).

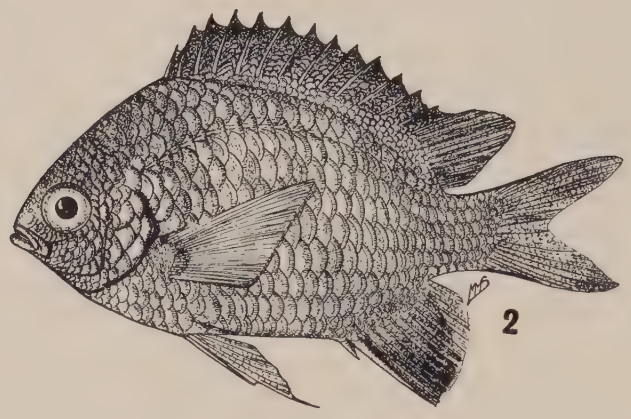

Fig. 2. **Chromis analis** (C & V). 100mm. Pinda.

D XIII 12. A II 12. P 2, 15, 1. Upper L.1. 15. Gillrakers 7+19. Depth 1.9, head 3.2-3.4 in body. Eye 2.6 in head, exceeds snout, equals interorbital. Preorbital depth $\frac{1}{4}$ eye. Pectoral 1.2 times, pelvic 1.1 times head. Preopercle edge smooth. Teeth in rows, outer little enlarged. 5-7th dorsal spines longest, 1.7 in head. Soft dorsal pointed, 4th ray longest, 1.2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is 1.2 in head. Soft anal rounded, rays shorter than 2nd spine. Caudal lobes pointed. Preorbital and suborbital scaly. 3 rows of scales on cheek, lower limb scaly. Scales to front of snout. In life brown yellow, spinous dorsal and anterior anal dusky. Axil of pectoral with dark spot. Eye silvery, dark above with coppery ring round centre of iris. As preserved, similar, faint lines along scale rows. To 120mm. Baixo Pinda. Known from the Pacific, not previously reported in the Indian Ocean, my specimens agree closely enough with available descriptions to warrant their identification as **analis** C & V.

5. **CHROMIS AXILLARIS** (Bennett), 1831. **Heliastes axillaris** Bennett 1831, 128 (Maur). Recorded serially from Mauritius by Gunther 1862, 61: Bleeker & Pollen 1875, 84: Bleeker 1879, 15: Sauvage 1891, 523: Gudger 1929, 5, 20: Baissac 1953, 2: and Baissac 1956, 333. Not seen. A doubtful species with long 2nd anal spine related to **analis** C & V, 1830, apparently not certainly seen again; the type description, very brief, as follows: D XIV 14. A II 12. Pale brown-blue, axil black, caudal and anal fins blackish blue. Second anal spine strong, little longer than those following. Body ovate (no size, type lost).

6. **CHROMIS DIMIDIATUS** (Klunzinger), 1871. (**P1 31, I**). **Heliastes dimidiatus** Klunzinger 1871, 529 (Red Sea). Gunther 1881, 237, P1 125, E (Red Sea). **Chromis dimidiatus** Fowler & Bean 1928, 45 (Red Sea). Smith 1949, 507, P1 51, fig 746a (Inhaca) and 1955a, 888 (Aldabra). Salvadori 1955, 61, P1 II, f 3 (Red Sea). Fourmanoir 1954, 226 (Comores) and 1957, 200. Roux-Esteve and Fourmanoir 1955, 198 (Rec Red Sea). Fourmanoir 1957, 200 (Anjouan). Arnoult 1958, 79 (Rec. Aldabra). **Chromis xanthurus** (**non** Blkr) Regan 1917, 459 (Natal). D XII 12-13. A II 12-13. P 2, 13, 2. Upper L.1. 15-16. 8+20 gillrakers. Depth about 2, head 3.3 in body. Eye about 3 in head, exceeds snout, about equals interorbital. Preorbital depth about 3 in eye. 5-6th dorsal spines longest. Soft dorsal and anal pointed. Pectoral about equals pelvic, nearly equals head. Preorbital and suborbital scaly. 2-3 rows on cheek, lower limb scaly. Scales to front of snout. Alive, as P1 31, I; preserved, brown in front, base of pectoral black, hind part light. To 70mm. Zululand, Inhaca, northwards over whole W.Indian Ocean, in some parts abundant.

7. **Chromis agilis n.sp.** (**P1 26, A** (col) & **P1.32, J**).

D XII 12-13. A II 12-13. P 2, 12, 2. Upper L.1 14-16. Gillrakers 8+20. Depth 1.9, head 3.4-3.6 in body. Eye 2.2-2.4 in head, twice snout, equals interorbital. Preorbital depth $\frac{1}{4}$ eye. Pectoral 1.2 times, pelvic 1.3-1.4 times head. Preopercle edge concave. Outer teeth little enlarged. 4-6th dorsal spines longest, 2 in head. Soft dorsal pointed, 5-6th rays longest, almost equal head. 1st anal spine less than $\frac{1}{2}$ of 2nd, which is 1.5-1.8 in head. Soft anal pointed behind. Caudal lobes filamentous. Preorbital and suborbital scaly. 2-3 rows of scales on cheek, lower limb scaly. Scales on tip of snout. Alive, as in P1 26, A, preserved similar. To 72mm, including caudal filaments. Baza-

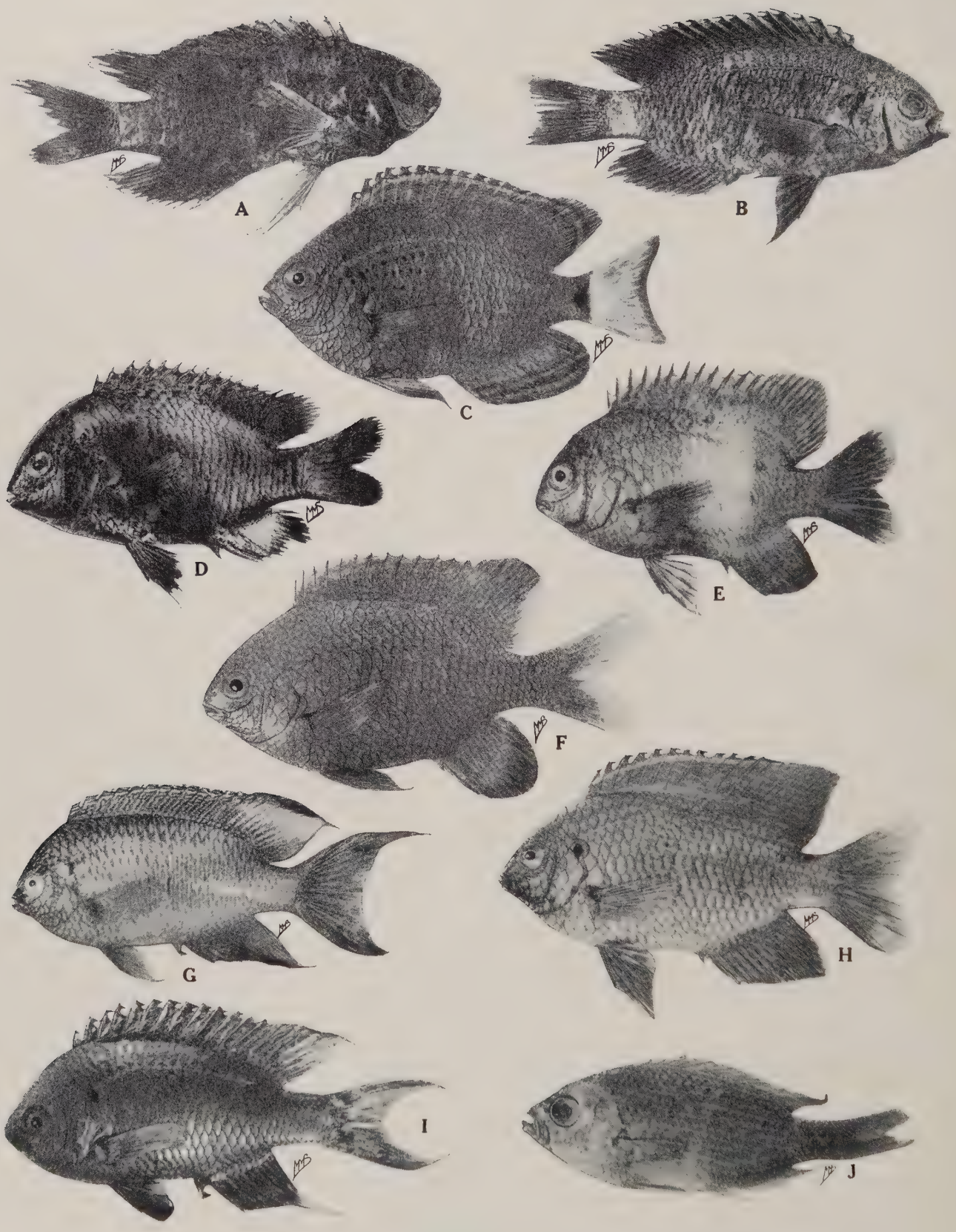

PLATE 27

A. **Pomacentrus madagascariensis** Sauvage. Type, 75mm (Madag). B. **Pomacentrus caeruleus** Q & G. Type, 103mm (Maur). C. **Pomacentrus trichourus** Gunther. 77mm (Tanga). D. **Pomacentrus nigripinnis** Bliss. Type, 122mm (Maur) = E. **Pomacentrus nigricans** Lac. 110mm (Pinda). F. **Pomacentrus luteobrunneus n.sp.** Type, 115mm (Astove). G. **Pomacentrus pavo** Bloch. 128mm (Pinda). H. **Pomacentrus tripunctatus** C & V. 110mm (Pinda). I **Pomacentrus taeniurus** Blkr. 100mm (Kifuki). J. **Pristotis cyanostigma** Ruppell. Cotype, 60mm (Red Sea).

ruto northwards over most of W.Indian Ocean to Seychelles. The type, 70mm, from Astove. Related to **ovatiformis** Fowler, 1946 from Riu Kiu Islands, Pacific, but body less deep and dorsal much more pointed, clearly distinct from all other species as shown in key.

8. **CHROMIS TERNATENSIS** (Bleeker), 1856. **Heliastes ternatensis** Bleeker 1856, 377 (Ternate). D XII 11. A II 11. P 2, 15, 2. Upper L.l. 16. Gillrakers 9+24. Depth 1.8-2, head 3.5 in body. Eye 3 in head, 1.5 times snout, equals interorbital. Preorbital depth half eye. Pectoral 1.1 times, pelvic equals head. Preopercle edge concave at angle. Outer teeth enlarged. 4-5th dorsal spines longest, 2.3-2-5 in head. Soft dorsal pointed, 5th ray longest, 1.3 in head. 1st anal spine almost half of 2nd, which is 2.3 in head. Caudal lobes pointed. Preorbital and suborbital scaly. 3 rows of scales on cheek, lower limb scaly. Scales to front of snout. Colour, alive, juveniles bluish, adults golden upper and lower caudal margins black. Preserved, light brown, darker above, upper and lower margins of caudal dark. To 100mm. Found throughout the W.Indian Ocean from Inhaca northwards, not previously recorded from there, previously known only from the Pacific.

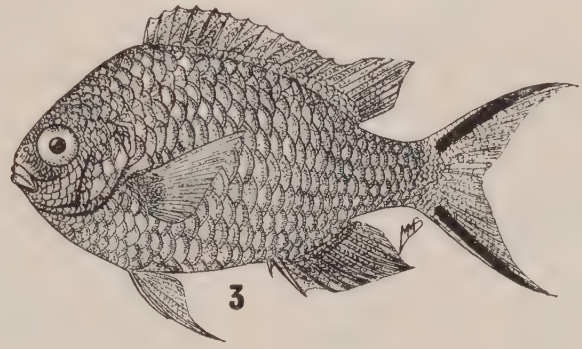

Fig. 3. **Chromis ternatensis** (Blkr). 90mm (Pinda).

9. **Chromis nigrurus n.sp.** (**Pl 29, I**).

Chromis ternatensis (**non** Blkr) Smith 1955, 17 fig.19 (Inhaca) and 1955a, 888 (Aldabra). D XII 10(-11). A II 11. P 2, 14, 1. Upper L.l. 15-16. Gillrakers 8+18-19. Depth 2.4-2.5, head 3.2 in body. Eye 2.6 in head, about twice snout, equals interorbital. Preorbital depth less than $\frac{1}{4}$ eye. Pectoral equals pelvic, equals head. Preopercle edge smooth, straight. Teeth small, outer little enlarged. 4-6th dorsal spines longest, 2.5 in head, soft dorsal higher, 6-7th rays longest, 1.5 in head. 1st anal spine half of 2nd, which is 2.4 in head. Soft anal resembles dorsal, 6-7th rays longest. Caudal lobes filamentous. Preorbital and suborbital both scaly. 2 rows of scales on cheek, lower limb scaly. Scales on snout to before nostrils. Colour in life as Pl 29, I. Preserved, brownish, with rows of spots, or uniform, lighter below, dorsal and anal dusky, hind part light, upper and lower edges of caudal black, rest light. Up to 60mm. Inhaca northwards over most of W.Indian Ocean. The type, 50mm, from Inhaca. This is probably the fish mentioned by Weber and de Beaufort 1940, 459 as having been wrongly named **ternatensis** Bleeker by Weber 1913, 359.

10. **CHROMIS OPERCULARIS** (Gunther), 1866. (**Pl 26, K**, juv. and **Pl 32, G**). **Heliastes opercularis** Gunther 1866, 84, Pl XI, fig 2 (Zanzibar). Sauvage 1875-91, 435 (Mad). Smith 1955a, 888 (Aldabra). D XIII 11. A II 10-12. P 2, 14, 2. Upper L.l. 18. Gillrakers 8+21. Snout rather blunt. Depth 2.2-2.3, head 3.4-3.6 in body. Eye 3-3.5 in head, $\frac{2}{3}$ snout, 1.2 in interorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral 1.1 times, pelvic equals head. Preopercle edge barely concave. Outer teeth enlarged. 4-5th dorsal spines longest, 1.7 in head. Soft dorsal pointed, 3-4th rays longest, 1.2 in head. 1st anal spine less than half of 2nd, which is 1.7 in head. Soft anal pointed. Caudal lobes pointed. Preorbital and suborbital scaly. 2 rows of scales on cheek, lower limb scaly. Scales to tip of snout. Juv. coloured as Pl 26, K. Adult sombre in life (Pl 32, G) brownish, dark blotch behind opercle, dark line down preopercle edge, and whole pectoral base dark. Interorbital, lips and most of dorsal and anal dusky, only hind edge light, also hind edge of caudal. Membrane between spine and first four pelvic rays dark. 1-4 small dark blotches between mid caudal rays. To 160mm. Bazaruto northwards, throughout the W.Indian Ocean. Has not been described since 1866.

11. **Chromis simulans n.sp.**

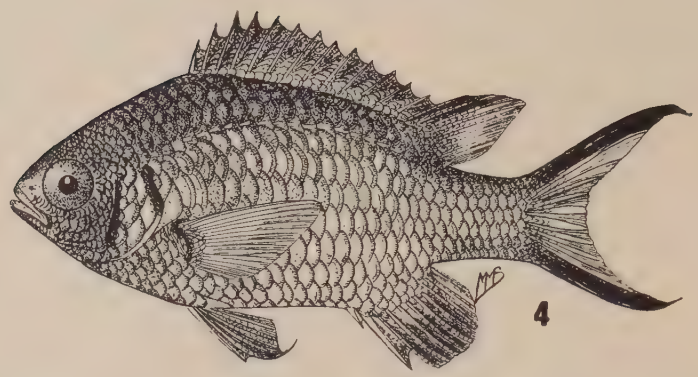

Fig. 4. **Chromis simulans n.sp.** Type. (Mozamb).

D XIII 11-12. A II 11-12. P 2, 15, 2. Upper L.l. 17-18. 9+21 gillrakers. Depth 2.3-2.4, head 3-3.3 in body. Eye 3 in head, exceeds snout, equals interorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral about equals head, pelvic little less. 4-7th dorsal spines longest, 2.1 in head. 2nd anal spine 1.8-2.1 in head. Soft dorsal pointed, 3-4th rays longest, less than head without snout. Anal of more or less uniform height. Caudal lobes pointed. Preorbital and suborbital scaly. 2 rows on cheek, lower limb scaly. Scales to front of snout. Dusky or blue silvery brown, more or less uniform. Eye pale yellow. Front and hind edges of opercle dark, also pectoral base narrowly dusky. Sometimes dusky spots on chest. Spinous dorsal and front of soft fin dusky, hind rays light, most of anal dusky. Pelvics uniform dusky. A broad dark bar in each caudal lobe, rest of fin light. To 120mm. Bazaruto northwards, over most of W.Indian Ocean. The type, 110mm from Is.Mozambique. A smaller species, closely related to **opercularis** Gunther, 1866, but it is easily distinguished from **opercularis** by the more acute snout, less dark areas about head, dark bars in caudal lobes, no dark spot at base of caudal rays, and lower soft dorsal. I have found ripe females both of this species and of **opercularis**.

12. **CHROMIS XANTHOCHIR** (Bleeker), 1851. (**P1 32, D**). **Heliases xanthochir** Bleeker 1851, 248 (E.Indies). **Chromis xanthochir** Arnoult 1958, 79 (Aldabra). Not seen. D X III 10-11. A II 11. Upper L.l. 16-18. Gillrakers unknown. Depth 2.2-2.4, head 3.3 in body. Eye 3 in head, 1-1.1 in interorbital. 4-5th dorsal spine longest. Soft dorsal and anal pointed. 2nd dorsal spine shorter than the soft rays. Colour according to Bleeker 1877, P1 402, f 5 is brownish above, yellow below, vertical fins body colour, but yellow behind, pectoral light. To 160mm. Pacific, one 43mm specimen recorded from Aldabra.

13. **CHROMIS CINERASCENS** (C & V), 1830. (**P1 30, K**). **Heliases cinerascens** C & V, 1830, 495 (Java). Guichenot, 1863, 25 (Rec.Reunion). Bleeker & Pollen 1875, 84 (Rec.Reunion). Sauvage 1891, 436, P1 28, f 2 (Reunion). Not seen. D XIII(XIV) 10-11. A II 10-11. Upper L.l. 18. 8+22 gillrakers. Depth 2.2, head 3.4 in body. Eye 3.3 in head, 1.2 in interorbital. Preorbital and suborbital narrow, scaly. 3 rows of scales on cheek, lower flange mostly scaly. Dull coloured, more or less uniform brown yellow. To 130mm. An East Indian species, recorded from Reunion without description.

14. **CHROMIS CINCTUS** (Playfair), 1867. **Heliastes cinctus** Playfair 1867, 864 (Seych). Sauvage 1891, 523 (Rec). **Chromis cinctus** Blkr & Pollen 1875, 84 (Rec.Seych). Not seen. D XIII. A II 13. Depth 2, head 3.6 in body. Preorbital depth exceeds half eye. Eye equals interorbital. Preopercle margin straight. 3 cheek scales, lower limb naked. Preorbital naked. 7th dorsal spine longest, soft fin higher than long, longest ray 1.7 times 7th spine, 2nd anal spine longer than any dorsal spine. Caudal forked, the lobes rounded. Dark violet, with a 2-scale wide yellow band crossing body below 5-6th dorsal spines—in juveniles it reaches the ventral profile, but not so far in adults. Dorsal yellowish with a black margin, a black white-edged ocellus on the base behind extending on the top of tail; in young specimens a large similarly coloured ocellus on last spines, extends slightly on body. Caudal yellowish with brighter cross-band near the base. Anal and pelvics blackish, pectoral yellow with a small spot on axil. Seychelles, no information about size, not again reported or described.

6. **Dascyllus** Cuvier, 1829.

Tetradrachmum Cantor, 1849.

Type **Chaetodon aruanus** Linn, 1758. Body orbicular, with less than 30 series of scales. Fins basally scaly. Mouth oblique, teeth conical, in narrow bands, outer series enlarged. Preorbital and suborbital scaly, lower edges serrate. Whole preopercle edge, also other opercles more or less serrate. Caudal feebly emarginate. Few species, all small, tropical Indo-Pacific. Three in the W.Indian Ocean, one in the Red Sea, easily distinguished.

A. Dark cross-bars:
   I. Two rather faint narrow bars. Whole anal black. D XII 15-16. A II 14 ..... 1. **reticulatus**
   II. Three broad cross-bars. D XII 12-13. A II 12-13 ..... 2. **aruanus**

B. No cross-bars:
   I. Brown to black, a white spot on nape, another above 11-14th L.l. scales. Caudal barely emarginate ..... 3. **trimaculatus**
   II. Greyish. Dorsal with black edge, pelvic and front of anal black. Caudal emarginate ..... 4. **marginatus**

1. **DASCYLLUS RETICULATUS** (Richardson), 1846. (**Pl 31, J**). **Dascyllus carneus** Fisher 1885, 71, Pl II, fig 5 (Moz). Smith 1949, 750, Pl 50, fig 750 (Delagoa B). **Dascyllus marginatus reticulatus** Marshall 1952, 238, fig 2 b (Gulf Aden). **Dascyllus marginatus** (**non** Ruppell) Smith 1949, 280, fig 753, (Delagoa). Fourmanoir 1957, 202 (Comores). Arnoult 1958, 81 (Aldabra). D XII 15-16. A II 14. P 11, 18, 1. Upper L.l. 18-19. Gillrakers 7+1+18-19. Depth about 1.6, head about 3 in body. Eye 2.8 in head, 1.4 times snout, 1-1.2 times interorbital. Preorbital depth half eye. Preorbital and suborbital with serrae, also preopercle edge, some on edge of interopercle. Pectoral subequal with pelvic, about equal head, both reach short of level of anal origin. Conical teeth in narrow bands in each jaw, outer series enlarged. 2nd dorsal spine abruptly longer than 1st, 2-4th subequal longest, about 1.5 in head, soft fin lower than front spines, rounded. 1st anal spine little less than half 2nd, which is 1.8 in head, soft fin higher, rounded. Caudal emarginate, lobes rounded, no spines at base. Preorbital, suborbital and whole snout to tip scaly. 3-3½ rows on cheek and lower flange scaly. In life variable, Pl 31, J, is typical with dorsal spines and base brilliant blue. Some communities have whole body dark, tail white. Others similar have large white oval ocellus on side above between bars about half interspace. Sometimes whole fish light with the two cross-bars sharply contrasting. Preserved, yellow-brown, the cross-bars variably distinct, spinous dorsal, anal and pelvic dark; dark mark in pectoral axil. The hinder cross-bar runs sometimes to near front of anal, sometimes only to hind part; bars vary widely in intensity, sometimes bold, in other fishes barely visible, but always present. Numerous specimens, 35-70mm, Delagoa northwards over W.Ind. Ocean (not Red Sea), mostly about coral in deepish water. Extends to Pacific. As typical **marginatus** Ruppell, 1828 does not appear to occur beyond, or barely beyond the Red Sea, records of that species from the W.Indian Ocean probably all pertain to **reticulatus.**

2. **DASCYLLUS ARUANUS** (Linn), 1758, (**Pl 32, E**). Numerous records over whole W.Indian Ocean from Natal northwards, also Red Sea. Gunther 1881, 235, Pl 124, B (Red Sea: E.Afr). Day 1878-88, 381, Pl 80, fig 6 (E.Afr). Smith 1949, 280, Pl 50, f 749 (E.Afr). Salvadori 1955, 59, Pl 11, fig 1 (Red Sea). D XII 12-13. A II 12-13. P 2, 15-16 1. Upper L.l. 16-18. Gillrakers 7+1+16-17. Depth about 1.6, head about 3 in body. Eye 2.6-3 in head, about 1.4 times snout, equals interorbital. Preorbital depth 2.5 in eye. Preorbital, suborbital, and all opercles with serrae. Pectoral and pelvic subequal, about equal head, both reach to near level of anal origin. Conical teeth in narrow bands in each jaw, outer series enlarged, 4-5th dorsal spines longest, about 2 in head, hinder shorter, soft fin higher, acutely rounded. 1st anal spine 2.5 in 2nd, which is about 2 in head, soft fin rounded. Caudal emarginate, lobes rounded, 2 isolated spines behind base above and below. Preorbital, suborbital and whole snout scaly. 3½ rows on cheek and lower flange scaly. In life silvery and black, preserved similar, as shown in Pl 32, E. Numerous specimens, 15-75mm, from Durban northwards over whole W.Indian Ocean, mainly from weeds in shallow water. Extends to central Pacific.

3. **DASCYLLUS TRIMACULATUS** (Ruppell), 1828. (**P1 32, C, F**). **Pomacentrus trimaculatus** Ruppell 1828, 39, P1 8, fig 3 (Red Sea). As **Dascyllus trimaculatus,** numerous records over whole W.Indian Ocean from Natal northwards, also Red Sea. Smith 1949, 280, P1 50, fig 751 (E.Afr). Fourmanoir 1957, 202, fig 143 (Madag.Comores). **Dascyllusaxillaris** Smith 1936, 205, P1 22, D; and 1949, 280 fig 753 (S.Afr.) D XI-XII 15. A II 13-14. P 2, 17, 1. Upper L.1. 18-20. Gillrakers 7+1+16-17. Depth about 1.5, head 3.3 in body. Eye 2.5-3 in head, equals snout. 1-1.1 in interorbital. Preorbital depth 2.5 in eye. Preorbital, suborbital, preopercle and opercle with fine serrae. Pectoral and pelvic subequal to head,both reach to level of anal origin. Conical teeth in bands in each jaw, outer series enlarged. 2nd dorsal spine abruptly longer than 1st, 2nd-4th longest, subequal, in adult 1.5 in head. Soft fin higher than spinous, gently rounded. 1st anal spine less than half 2nd, which is 1.4 in head, soft fin gently rounded. Caudal barely emarginate, lobes rounded, 2 isolated spines behind base above and below. Preorbital, suborbital and whole snout to tip scaly, 4 rows on cheek and lower flange scaly. In life dark brown to black, also fins. In young a white spot on nape, and a larger white blotch above 11-14th lateral line scales, these white spots become fainter with age, often absent in large specimens. Blacker blotch in pectoral axil. Preserved similar. Numerous specimens, 20-125mm, from Durban, S.Africa, northwards over whole W.Indian Ocean, mostly in shallow water. Most specimens are dark, occasionally one is light. Extends to mid Pacific.

4. **DASCYLLUS MARGINATUS** (Ruppell), 1828. (**P1 32, H**). Ruppell 1828, 38, P1 8, fig.2 (Red Sea); numerous records from the Red Sea: Marshall 1952, 237, fig 2a (Red Sea). Salvadori 1955, 59, P1 1, fig 4 (Red Sea). D XII 14. A II 12. P 2, 14, 2. Gillrakers 8+20. Depth 1.7, head 3.1 in body. Eye 3 in head, about equals snout, 1.1 in interorbital. Preorbital depth half eye. Preorbital and suborbital edge with fine serrae, preopercle edge finely rugose, not serrate, interopercle similar. Pectoral subequal with pelvic, slightly less than head, pelvic to beyond anal origin. Conical teeth in narrow bands in each jaw, outer series enlarged. Second dorsal spine abruptly longer than 1st, 2nd to 4th subequal, longest, about 1.8 in head, soft fin as high as front spines, rather pointed in front. 1st anal spine about half of 2nd which is 2 in head, soft fin higher, acutely rounded. Caudal emarginate, lobes little rounded, upper longer, several spines at base above and below. Preorbital, suborbital and whole snout to tip scaly. 3-3½ rows of scales on cheek, lower flange partly scaly. Alive according to Ruppell, head and forepart of body dark grey, the back and peduncle yellowish, latter with fine blue spots and blue edges to caudal. Outer portion of dorsal and anal black, also pelvic. Pectoral and hind part of tail grey hyaline. Preserved, similar, large dark blotch on pectoral axil, only front lower part of anal black. Described from a single specimen, 60mm in length, from Gulf of Aqabat, kindly lent by Dr. W. Klausewitz, who has also sent on loan one of Ruppell's types, No.1498 from the Red Sea, 36mm total length, which is similar but with dark marks faded and has D XII 14, A II 13. It may be noted that Ruppell's original description gave D XII 10, A II 12, but his illustration 1828, P1 8, f 2 shows D XII 13 or 14 and A II about 13. This species seems to be constantly differentiated from **reticulatus** Richardson, 1845 in markings, **marginatus** never has the cross-bars down over the body, and only the front half of the anal black, in all my specimens of **reticulatus** the whole anal is black.

7. **Lepidochromis** Fowler and Bean 1928, 58.

Type **Chromis lepidolepis** Bleeker, 1876 (Timor). Ovoid compressed body with less than 30 series of ctenoid scales, those on head and shoulder with 1-3 auxiliary scales. Upper L.1. ends below soft dorsal. Preopercle serrate, other opercles smooth. Teeth conical, in bands in each jaw, outer series enlarged. Clearly differs from **Dascyllus** Cuvier, and from **Chromis** Cuvier, in its combination of characters. Two species, the type, known only from the Pacific, and one from the Western Indian Ocean described below, differ chiefly in dentition.

Lepidochromis brunneus n.sp. (P1 **32, B**).

D XII 12. A II 11. P 2, 15, 1. Upper L.1. 17-18. Gillrakers 9+1+20-21. Depth 2, head 3.4 in body. Eye 2.7-3 in head, 1.4 times snout, 1.1 in interorbital. Preorbital depth 3 in eye. Pectoral about equals head, does not reach to anal origin, pelvic slightly longer than head, about reaches anal origin. Hind preopercle edge spinate, other preopercles entire. Teeth mostly conical, in broad bands in each jaw, anterior series in each enlarged, acute, with somewhat compressed strangulated apices. Dorsal spines increase to 5th, longest, about 2 in head, the hinder shorten slightly to the

PLATE 28

A. *Pomacentrus pulcherrimus n. sp.* Type. 75 mm. Pinda. B. *Pomacentrus trichourus* Gnthr. 77 mm. Tanga. C. *Pomacentrus sulfureus* Klunz. 82 mm. Pinda. D. *Chromis caeruleus* (C. & V.). 45 mm. Inhaca. E. *Abudefduf biocellatus* (Q. & G.). 51 mm. Inhaca. F. *Abudefduf dasygenys* Fowler. 120 mm. Inhaca. G. *Abudefduf zonatus* (C. & V.). 92 mm. Seych. H. *Abudefduf melanopus* (Blkr). 55 mm. Shimoni.

last. Soft dorsal higher, mid rays longest, about 1.3 in head, edge of fin acutely rounded. 1st anal spine less than half of 2nd, which is 1.5 in head. 2-5th anal rays longest, 1.2-1.3 in head, edge of fin barely rounded. Caudal lobes pointed, the upper longer, slightly filamentous. Most scales of top of head and front part of body with 1-3 small auxiliary scales. Preorbital and suborbital both completely scaly. $2\frac{1}{2}$ rows of scales on cheek, $1\frac{1}{2}$ rows on lower preopercle rim to margin, scales on head almost to tip of snout. As preserved, uniform brown, fins similar, a dark bar in each caudal lobe, most of anal dusky. Dusky patch on opercle, anus darkish. In life similar, a drab fish. Numerous specimens, 35-80mm, from island of Mozambique northwards to Malindi, also most islands to Seychelles. Type, 75mm, from Baixo Pinda, Moz. Closely related to, certainly at least congeneric with **lepidolepis** Bleeker, 1876, hitherto known only from the Pacific. However, Fowler 1928, 58; Weber and de Beaufort 1940, 450: and Schultz 1960, 67, P1 83, A: all state explicitly that **lepidolepis** Blkr, has only 2 rows of teeth, whereas my specimens have in each jaw a band of at least 4 series of conical teeth plus the outer anterior enlarged teeth. Also the anal fin in my specimens is not shaped or marked as shown in Schultz 1960, P1 83, A. It seems desirable, therefore, at present to maintain the Western Indian Ocean form as distinct.

8. **Plectroglyphidodon** Fowler & Ball, 1924.

Fowler & Ball, 1924, 271.

Type **P.johnstonianus** Fowler and Ball, 1924 (Johnston Is). Deep body. Teeth sub-incisiform. Lips plicate, lower with large fold each side. Rakers short, few. No opercles serrate. Dorsal and anal with numerous rays. Only the type species, Pacific, and one in the W.Indian Ocean. Close to **Cheiloprion** Weber, 1913, possibly worthy of maintenance as differs widely in dorsal formula and quite smooth preopercle. Only the type species and the one below, differ in markings.

PLECTROGLYPHIDODON NITIDUS Smith, 1955 (**P1 26, L**). Smith 1955a, 892, P1 XXI, B (Aldabra). D XII 17-18. A II 16. P 2, 15, 2. Upper L.l. 21-22. 0-1+10-11 gillrakers. Depth about 1.9, head 3.2 in body. Eye 3.5-4 on head, equals snout, 1-1.1 in interorbital. Preorbital depth half eye. Preopercle margin smooth. Pectoral and pelvic reach level of anal origin. Last dorsal spine longest, soft dorsal and anal little elevated, longest rays barely exceed half head length. Caudal lobes rounded. Preorbital and suborbital with 2 rows of scales, scales on snout to nostrils. 3-4 series on cheek, flange scaly. Alive as in P1 26, L, preserved, with colour faded, but cross-bar distinct. To 80mm. Easily known from similar **A.dicki** (Lienard) by wider cross-bar and thicker lips. Found in W.Indian Ocean about coral from Inhaca northwards, but rare.

9. **Abudefduf** Forskal, 1775, 59.

Glyphisodon Lacepede, 1803. **Chrysiptera** Swainson, 1839. **Stegastes** Jenyns, 1842. **Glyphidodon** Gill, 1862. **Euschistodus** Gill, 1862. **Amblyglyphidodon** Bleeker, 1877. **Paraglyphidodon** Bleeker, 1877. **Glyphidodontops** Bleeker, 1877.

Type **Chaetodon sordidus** Forskal, 1775. Ovoid to fairly elongate body with less than 30 ctenoid scales. Upper lateral line ends below soft dorsal. Opercle not serrate, preopercle margin mostly smooth, sometimes rough or jagged, never with distinct spinules. Teeth compressed, incisiform, in 1-2 series, inner if present smaller. Dorsal with 12-14 spines, hindmost spines usually not longest. Circumtropical, mainly about reefs and in weeds, mostly rather small fishes.

26 species recognised in the W.Indian Ocean, in many parts some are exceedingly abundant, the larger of importance as food, many taken in traps.

Key to Western Indian Ocean Species

A.	3-4 scales between lateral line and dorsal base	Group A
AA.	1-2 scales between lateral line and dorsal base	B
B.	Body with alternate black and white cross-bars	1. **annulatus**
BB.	Body not as B	C
C.	Preopercle edge rather jagged, especialy near angle (Suborbital margin covered by scales)	Group C
CC.	Preopercle edge quite smooth	D
D.	12 dorsal spines. 15-18 soft dorsal rays	Group D
DD.	13 dorsal spines. 10-15 soft dorsal rays	E
E.	Depth not less than half body length	Group E
EE.	Depth less than half body length	Group F

Group A

3-4 scales between end of L.1. and dorsal base:

A.	Scales on snout to or beyond nostrils:	
	I. Lower preopercle limb naked. Cd lobes rounded	2. **bengalensis**
	II. Lower limb scaly. Cd lobes pointed:	
	a. Scales on snout beyond nostrils:	
	1. A bar in each caudal lobe. A II 12-13	3. **sexfasciatus**
	2. No bar in caudal lobe. A II 13-14	4. **rhyncholepis**
	b. Scales on snout not beyond nostrils. Caudal lobes plain:	
	1. 1-4 indistinct bars	5. **notatus**
	2. 5 clear cross-bars	6. **saxatilis**
B.	Scales on snout not to nostrils:	
	I. D XIII 13. No saddle on peduncle	7. **septemfasciatus**
	II. D XIII 14-15. Saddle on peduncle	8. **sordidus**

Group C

1-2 scales between end of lateral line and dorsal base. Preopercle edge jagged, especially near angle:

A.	Caudal with dark stripe in each lobe	9. **anabatoides**
B.	Caudal plain:	
	a. 10-11 dorsal soft rays, soft dorsal, anal and caudal filamentous	10. **bankieri**
	b. 12-13 dorsal soft rays. Dorsal and anal not filamentous	11. **dasygenys**
	c. 15-17 dorsal soft rays	12. **cingulum**

Group D

1-2 scales between end of lateral line and dorsal base. Preopercle edge smooth. 12 dorsal spines, 15-18 dorsal soft rays:

A.	Spotted dark body, tail lighter	13. **lacrymatus**
B.	Dark cross-bar across hind part body	14. **dicki**
C.	White cross-bar over middle of body	12. **cingulum**

Group E

13 dorsal spines. 10-15 dorsal soft rays. Preopercle edge smooth. Depth equals or exceeds half body length:

A. D XIII 12-14. A II 13-14. Uniform light. Soft dorsal and anal elevated ..... 15. **leucogaster**

B. D XIII 13. A II 12. Black blotch on side of peduncle ..... 16. **sparoides**

C. D XIII 13-15. A II 12-14:
   1. Pelvic not longer than head. Uniform black ..... 17. **melas**
   2. Pelvic exceeds head:
      x. Light, also fins, but front of anal and pelvics black ..... 18. **melanopus**
      y. Brownish, also fins, but caudal lighter ..... 19. **xanthurus**

Group F

13 dorsal spines. 10-15 dorsal soft rays. Preopercle edge smooth. Depth less than half body length:

A. Suborbital without scales, also lower preopercle flange:
   1. Body light. Anus black. D XIII 12. A II 11-12 ..... 20. **glaucus**
   2. Body dark, light vertical bar across body at pectoral or basal half of soft dorsal black. Caudal lighter. D XIII 12-13. A II 12-13. Young with 2 ocelli on dorsal ..... 21. **zonatus**

B. A few rudimentary scales on suborbital. Lower preopercle flange naked:
   1. Blue lines and 2 ocelli at end of dorsal ..... 22. **biocellatus**
   2. 3-4 yellow cross-bars ..... 23. **xanthozonus**
   3. Body light, no special marks ..... 24. **imparipennis**

C. Scales on suborbital and at least one on lower preopercle flange:
   1. Body light. D XII 15(14). A II 11-12. Anus black ..... 24. **imparipennis**
   2. Body light. D XIII 11. A II 11-12. Mid ray of D & A and Cd lobes with filaments. Depth 2.3-2.5 ..... 25. **fallax**
   3. Body dark, caudal light. D XIII 11. A II 12. Mid ray of D and A and Cd lobes with filaments. Depth 2.2 ..... 26. **fuliginosus nov.**

1. **ABUDEFDUF ANNULATUS** (Peters), 1855. (**Pl 31 H**). **Pomacentrus annulatus** Peters 1855, 455 (Moz). Gunther 1862, 18 (Moz). Klunzinger 1871, 520 (Red Sea). Gunther 1866, 81 (Zanz). Sauvage 1891, 523 (Rec). Pfeffer 1893, 17 (E.Afr). Jatzow & Lenz 1898, 517 (E.Af., Madag., Aldabra). Barnard 1927, 733 (Moz). Smith 1949, 283, Pl 50, f 754 (Moz). Smith 1955a, 894 (Aldabra). Baissac 1957, 30 (Mauritius). D XIII 12. A II 12-13. P 2, 15, 1. Upper L.l. 17-18. Gillrakers 5-6+9-10. Depth about 2, head about 3 in body. Eye 3-3.3 in head, 1.4 times interorbital, 1.4 times snout, 1.4 in postorbital. Preorbital depth $\frac{1}{3}$ of eye. Pectoral 1.2, pelvic 1.1 in head. Preopercle edge finely crenulate. Teeth biserial, edge rounded. 5th dorsal spine longest, 1.7-2 in head, last spine 1.5 in 5th. Soft dorsal rounded, mid rays longest, 1.6 in head. 1st anal spine $\frac{1}{3}$-$\frac{1}{2}$ of 2nd, which is shorter than the longest rays and 2.5 in head. Soft anal rounded, mid rays longest, 1.5-2 in head. Pectoral tip to or near anal origin; pelvic with 1st ray barely filiform, to anal origin. Caudal lobes rounded, fin little emarginate. 2 scales between end of L.l. and base of last dorsal spine. Preorbital and suborbital naked. 2 rows of scales on cheek, lower preopercle flange naked. Scales on head to above hind margin of eyes, 3 isolated scales along middle of interorbital, front of snout naked. Alive as Plate 31 H, preserved, similar, yellow parts light. 30-65mm. Durban northwards to Shimoni, also in Red Sea, in weeds in shallow water, nowhere abundant. This fish has generally been assigned to **Pomacentrus** Lacepede, but the preopercle edge never has proper spinules, it is at most feebly crenulate, while the 5th dorsal spine is the longest, in **Pomacentrus** proper the last spine is normally the longest.

2. **ABUDEFDUF BENGALENSIS** (Bloch), 1787. (**Pl 30, D**). **Chaetodon bengalensis** Bloch 1787, 110, pl 213, f 2 (Bengal). **Glyphisodon bengalensis** C & V 1830, 458 (Red Sea). **Glyphidodon bengalensis** Capello 1871, 282 (Moz). **Glyphidodon bengalensis** Pellegrin 1914, 228 (Madag). **Glyphidodon saxatilis** (**non** Linn, part), Klunzinger 1871, 524 (Red Sea). Not seen. D XIII 13-15. A II 13-15. P 2, 15, 1. Upper L.1. 20-21. 7+15 gillrakers. Teeth uniserial, notched. Soft dorsal pointed, longest rays equal head, soft anal similar, but shorter. Pectorals equal head, pelvics with filiform ray, exceed head. Caudal lobes rounded. Scales on snout to nostrils. 4 scales between end of L.1. and dorsal base. Preorbital depth $\frac{2}{5}$ of eye, naked. Suborbital scaly. 3-4 series of scales on cheek, whole preopercle limb naked. Alive, yellowish with 7 narrow dark cross-bars, 4 entirely below dorsal, as in Pl 30, D; preserved, similar. To 160mm. Indo-Pacific, has been recorded from Red Sea and Madagascar, not found in E.Africa.

3. **ABUDEFDUF SEXFASCIATUS** (Lac.), 1802. (**Pl 29, C**). **Labrus sexfasciatus** Lacepede 1802, 430, 477, Pl 19, f 2 (Indo-Pacific). As **Glyphisodon** or **Glyphidodon** or **Abudefduf sexfasciatus** or **coelestinus** C & V, 1830 has been recorded over a wide area of the W.Indian Ocean. **Glyphisodon rahti** C & V 1830, 456 (Red Sea, Mohila). D XIII 12-13. A II 12-13. P 2, 16, 1. Upper L.1. 19-21. Gillrakers 7+15. Depth 1.9, head 3-3.5 in body. Eye 3-3.2 in head, 1.3 in interorbital, greater than snout, 1.5 in postorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral equals pelvic, equal or slightly exceed head. Preopercle edge smooth. Teeth uniserial, edge truncate. 4th to 6th dorsal spines longest, 2.2 in head. Soft dorsal pointed, 4-5th rays longest, 1.2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is 1.8 in head. Soft anal pointed, 5-6th ray longest, 1.2 in head. Pectoral tip not to anal origin; pelvic with 1st ray filiform, not to anal origin. Caudal lobes pointed. 3 scales between end of L.1. and dorsal base. Preorbital and suborbital both scaly. 3 rows of scales on cheek, lower preopercle flange scaly. Scales on snout to or beyond nostrils. Colour, alive as in Pl 29, C, the dark marks along the caudal lobes vivid in life. Preserved, dusky with cross bands as in Pl 29. To 160mm. From Durban northwards over most of Western Indian Ocean, sometimes in large shoals.

4. **ABUDEFDUF RHYNCHOLEPIS** (Bleeker), 1869. (**Pl 30, B**). **Glyphidodon rhyncholepis** Bleeker 1869, 230 (Reunion). Bleeker & Pollen 1875, 8 & 85, Pl 4, f 2 (Borbonia). Not seen. D XIII 13-14. A II 13-14. Upper L.1. 21-22. Depth 2, head $3\frac{1}{2}$ in body. Eye $2\frac{3}{4}$ in head, equals interorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral equals head, pelvics somewhat shorter. Preopercle edge smooth. 1st anal spine $\frac{1}{3}$ of 2nd. Soft dorsal and anal moderately pointed. Caudal lobes pointed. 3 scales between end of L.1. and dorsal base. Preorbital and suborbital both scaly. 4 rows of scales on cheek to lower edge of preopercle. Scales extend to front of snout, beyond nostrils. Stated to be dark olive above, silvery yellow below, top of head darker. 6 dark cross-bars as shown. Known only from the type, 132mm total length, from Reunion, now in the Leiden Museum. Dr. M. Boeseman has kindly confirmed Bleeker's data. Closely related to **sexfasciatus** Lac., but has six cross-bars and none in the caudal lobes.

5. **ABUDEFDUF NOTATUS** (Day), 1869. (**Pl 30, E**). **Glyphidodon notatus** Day 1869, 521 (Andamans). **Abudefduf notatus** Smith 1955a, 891 (Aldabra). D XIII 13. A II 13. P 2, 15, 1. Upper L.1. 20-21. Gillrakers 8+19. Depth 1.7, head 3.6 in body. Eye 3.2 in head, 1.4 in interorbital, equals snout, 1.7 in postorbital. Preorbital depth $\frac{1}{2}$ eye. Pectoral about equals pelvic, equals or exceed head. Preopercle edge smooth. Teeth uniserial, edge truncate. 4-6th dorsal spines longest, 1.5 in head. Soft dorsal pointed, 3-5th rays longest, 1-1.3 in head. 1st anal spine $\frac{1}{2}$ of 2nd, which is 1.5-1.8 in head. Soft anal obtuse, 5-6th rays longest, 1.2 in head. Caudal lobes pointed. 3 scales between end of L.1. and dorsal base. Preorbital naked, 1 row of scales on suborbital. 3 rows of scales on cheek, lower preopercle flange scaly. Scales on snout to nostrils. Colour, alive, dark brown with indistinct lighter bars, odd scales dark blue, dark mark at pectoral base. Preserved, as in Pl 30, E, almost uniform brown, bars faint. To 200mm. Inhaca, Pinda, Seychelles. Not often seen, found mostly in deeper water, taken by explosives, not before recorded from East Africa.

6. **ABUDEFDUF SAXATILIS** (Linn), 1758. (**Pl 29, B**). As **Glyphisodon** or **Glyphidodon** or **Abudefduf saxatilis** recorded from South Africa northwards over whole W.Indian Ocean and the Red Sea. **A.quinquilineatus** von Bonde 1934, 452, Pl 23, f 6 (Zanz). D XIII 12-13. A II 12-13. P 2, 15-16, 1. Upper L.1. 20-21. Gillrakers 9+18-19. Depth 1.7-1.9, head 3.5-3.6 in body. Eye 3-3.5 in head, 1-1.2 in interorbital, about equals snout, 1.5 in postorbital. Preorbital depth 3 in eye. Pectoral about equals pelvic, equals or exceeds head. Preopercle edge smooth. Teeth uniserial, slender, edge notched. 5-8th dorsal spine longest, 1.6 in head. Soft dorsal pointed, 4-5th rays longest, equal head. 1st anal spine $\frac{1}{3}$ of 2nd, which is 1.6 in head. Soft anal pointed, 5-6th rays longest, 1.3 in head. Pectoral tip not to anal origin; pelvic with 1st ray filiform, about to anal origin. Caudal lobes pointed. 3 scales between end of L.1. and dorsal base. Preorbital naked, suborbital scaly. 3 rows of scales on cheek, lower preopercle flange scaly, hinder naked. Scales on snout to nostrils. Alive, as in Pl 29, B. An exceedingly beautiful fish. As preserved, dusky yellow

with cross-bars as shown, 3 entirely below dorsal, dark mark at pectoral axil. To 200mm. From South Africa northwards throughout whole Western Indian Ocean, sometimes seen as small shoals around piers and wrecks.

7. **ABUDEFDUF SEPTEMFASCIATUS** (C & V), 1830. (**Pl 29, A**). **Glyphisodon septemfasciatus** C & V, 1830, 463 (Mauritius). As **Glyphidodon** or **Abudefduf septemfasciatus** has been recorded from over most of the W.Indian Ocean. D XIII 13. A II 12-13. P 2, 16, 2. Upper L.1. 21-22. Gillrakers 8+15. Depth 1.8, head 3.3 in body. Eye 3.3-4 in head, 1-1.2 in interorbital, 1-1.2 in snout, 1.5-2 in postorbital. Preorbital depth 1.2-2 in eye. Pectoral equals pelvic, 1-1.2 in head. Preopercle edge smooth. Teeth uniserial, edge notched in young, truncate in adult. 4-6th dorsal spine longest, 2-2.4 in head. Soft dorsal pointed, 5-6th rays longest, 1.6 in head. 1st anal spine about $\frac{1}{2}$ of 2nd, which is 2 in head. Pectoral tip near anal origin in young; not in adults; pelvic with 1st ray filiform, to anal origin in young, not in adults. Caudal lobes pointed. 3 scales between end of L.1. and dorsal base. Preorbital naked, suborbital scaly behind. 3 rows of scales on cheek, whole preopercle flange naked. Scales on snout reach front of I-orb, not to nostrils. Alive, as in Pl 29, A. Preserved, brownish with dark bars, 4 entirely below dorsal, and spot in pectoral axil. To 225mm. From Durban over whole Western Indian Ocean, but rarely seen.

8. **ABUDEFDUF SORDIDUS** (Forskal), 1775. (**Pl 29, E**). **Chaetodon sordidus** Forskal 1775, 13, 62 (Red Sea). As **Glyphisodon** or **Glyphidodon** or **Abudefduf sordidus**, numerous records from South Africa over whole W.Indian Ocean. **Glyphisodon geant** Lienard 1839, 35 (Maurit). **Glyphidodon adenensis** Gunther, 1866, 83, Pl XI, f 1 (Aden). D XIII 14-15. A II 14-15. P 2, 15, 2. Upper L.1. 21-23. Gillrakers 7+14-15. Depth about 1.8, head 2.9 in body. Eye 3-4.3 in head, 1-1.4 in interorbital, 1-1.5 in snout, 2-2.5 in postorbital. Preorbital depth $\frac{1}{3}$-$\frac{2}{3}$ eye. Pectoral 1-1.1, pelvic 1-1.3 in head. Preopercle edge smooth. Teeth uniserial, edge truncate. 4-5th dorsal spines longest, 2.5-2.8 in head. Soft dorsal obtusely pointed, median rays longest, 1.4 in head. 1st anal spine less than half of 2nd, which is shorter than the longest rays, and 2 in head. Soft anal rounded, mid rays longest, 1.4 in head. Pectoral tip near anal origin; pelvic not to anal origin. Caudal lobes rounded. 3-4 scales between end of L.1. and base of last dorsal spine. Preorbital naked, suborbital scaly behind. 3 rows of scales on cheek, lower preopercle flange naked. Scales on snout not to nostrils. Silvery grey, with light to yellow cross-bars, 4-5 below dorsal. A dark saddle on peduncle behind end of dorsal. Dark spot at pectoral axil. To 230mm. South Africa northwards through whole W.Indian Ocean.

9. **ABUDEFDUF ANABATOIDES** (Bleeker), 1847. (**Pl 32, K**). Roux-Esteve & Fourmanoir 1955, 198 (Rec.Red Sea). Roux-Esteve 1956, 85 (Red Sea). Not seen. D XIII 10-11. A II 10-11. P 2, 15. Upper L.1. 16-18. 8+17 gillrakers. Depth 2.3, head 3.6 in body. Eye 3.1 in head, equals interorbital, exceeds snout. Pectoral equals pelvic, about head length. Preopercle edge crenulate or jagged. Teeth uniserial, truncate. Last dorsal spine longest. Soft dorsal and anal pointed, mid rays filamentous, also caudal lobes. One scale between end of L.1. and dorsal base. Preorbital and suborbital scaly. 2-3 rows on cheek, lower limb scaly. Scales on snout to nostrils. Stated to be blue-green in life, covered with blue spots. Fins yellowish, a dark bar in each caudal lobe. Dark spot at pectoral base. To 110mm. Rare, previously known from Pacific only, recorded as above from Red Sea. Not found in Western Indian Ocean.

10. **ABUDEFDUF BANKIERI** (Richardson), 1846. **Glyphisodon bankieri** Richardson 1846, 253 (China seas). **Glyphidodon bankieri** Angot 1950, 460 (Rec. Madag). Smith 1955a, 891 (Aldabra).

Fig. 5. **Abudefduf bankieri** (Rich). 72mm (Malindi).

D XIII 10-11. A II 10-11. P 2, 14-15, 1. Upper L.1. 15-18. Gillrakers 7-8+14-15. Depth 2.5, head 3.5 in body. Eye 4 in head, 1-1.2 in interorbital, less than snout. Preorbital depth $\frac{1}{4}$ eye. Pectoral 1.1 in, pelvic 1.1 times head. Preopercle edge crenulate. Teeth biserial, edge truncate. Last dorsal spine longest, 2 in head. Soft dorsal pointed, 5-6th rays filamentous, longer than head. 1st anal spine less than $\frac{1}{2}$ of second, which is less than the longest rays, and 2 in head. Soft anal pointed, 6-8th rays filamentous, equal to or longer than head. Pectoral tip not to anal origin; pelvic with 1st ray filiform, to or beyond anal origin. Caudal lobes pointed, filamentous, upper longer, up to much longer than head. 1 scale between end of L.1. and dorsal base. Preorbital naked, suborbital hidden, scaly. 2-3 rows of scales on cheek, lower preopercle flange scaly to margin. Scales on snout to near nostrils. In life slaty blue, lighter spots on head and bars on scales, caudal, anal, pelvic and hind part of soft dorsal yellow. Preserved as fig 5, brownish, a half eye size dark blotch at shoulder, axil of pectoral black, extends above on body forming angular blotch. Most of dorsal dark, hinder part light, other fins light. 50-85mm, Ibo, Mozambique northwards to Malindi, Zanzibar, Aldabra. Also recorded from Madagascar, nowhere abundant.

11. **ABUDEFDUF DASYGENYS** Fowler, 1935. (**Pl 28 F** (col) and **Pl 32, A**). **Abudefduf dasygenys** Fowler 1935, 400 (Natal). Smith 1949, 283, Pl 51, f 768 (Natal). **Pomacentrus sindensis** (**non** Day) Regan 1916, p. 169 (Natal). Smith 1949, 281, Pl 51, f 755 (S.Africa). D XIII 12-13. A II 11. P 2, 16, 2. Upper L.1. 17-19. Gillrakers 8+18. Depth 2.1-2.3, head 3.3-3.8 in body. Eye 3-3.5 in head, equals interorbital, 1.4 times snout, 1.2-1.8 in postorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral equals or exceeds head, pelvic about equals head, shorter in large specimens. Preopercle edge crenulate. Teeth uniserial, edge truncate. 5th-last dorsal spine longest, 2-2.5 in head. Soft dorsal pointed behind, 6-7th rays longest, 1.2 in head. 1st anal spine about $\frac{1}{3}$ of 2nd, which is less than the longest rays, and 2 in head. Soft anal little pointed behind, 8th ray longest, about 1.3-1.5 in head. Pectoral tip almost above anal origin; pelvic with 1st ray filiform in young, to or near anal origin. Caudal lobes pointed. 1-2 scales between end of L.1. and dorsal base. Preorbital naked or with 1 scale behind, suborbital margin concealed, scaly. 3 rows of scales on cheek, lower preopercle flange scaly. Scales on snout to near nostrils. Alive as in Pl 28, F, preserved more or less uniform brownish, indications of spots on operculum, end of dorsal and caudal dusky. Small dark mark in pectoral axil. 70-120mm, Durban and Delagoa Bay only, among weeds. We did not find this species anywhere north of Inhaca island. Previously identified with **sindensis** Day, 1878, but differs from that species in deeper body, longer pectoral and markings. **sindensis** is shown by Day, 1878, Pl LXXII, fig. 2 and described as having blue spots mainly over upper part of body and head. **dasygenys** has pectoral equal to head, a deeper body, while blue spots are all below the lateral line, and crowded on peduncle.

12. **ABUDEFDUF CINGULUM** (Klunzinger), 1871. (**Pl 31 C** juv., **Pl 30, H, H'** adult). **Abudefduf leucozona** (**non** Blkr) Smith 1949, 282, Pl 50, fig 759 (S.Africa). D XII 15-17. A II 12-13. P2, 15, 2. Upper L.1. 20-21. Gillrakers 5+12-13. Depth about 2, head 3-3.2 in body. Eye 2.8-3.6 in head, 1.0-1.3 in interorbital, in adult equals snout, 1-1.3 in postorbital. Preorbital depth $\frac{2}{3}$ eye in adult, $\frac{1}{2}$ in juveniles. Pectoral 1.2 in, pelvic equals head. Preopercle edge slightly crenulate. Teeth uniserial, edge rounded. 5th dorsal spine longest, 1.8 (2.2 juv) in head. Soft dorsal higher in front, 5th ray longest, 1.4 (2 juv) in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than the longest rays, and 1.6 in head. Soft anal rounded, 4-5th rays longest, 1.5-1.7 in head. Pectoral tip not to above anal origin in adults; pelvic with 1st ray filiform, to or near anal origin. Caudal lobes rounded. 2 scales between end of L.1. and dorsal base. Preorbital naked, suborbital with one row of scales in juveniles, 2 in adults, lower edge naked. 3-4 rows of scales on cheek, lower preopercle flange scaly, lower edge naked. Scales on snout to or near nostrils. Alive, yellow or olive, adults uniform, with a more than eye wide white bar that curves across side from below about 6-8th dorsal spine, in smaller fish to anus, in large specimens not to ventral profile. Fins yellow. Dark blotch at pectoral axil. Juveniles as in Plate 31 C. The black marks fade with growth. Preserved; brownish, light cross-bar visible in some fishes, mostly not. Fins dark, except end of soft dorsal, upper caudal lobe and pectoral light. Dark spot at pectoral axil. 30-100mm, not uncommon in weedy areas from Natal northwards, throughout the W.Indian Ocean to Seychelles. This species has long been confused with **leucozonus** Bleeker, 1859, from which it clearly differs in the position of the cross-bar and in having 2 series of suborbital scales. There is no evidence that **leucozonus** occurs outside the Pacific.

13. **ABUDEFDUF LACRYMATUS** (Quoy & Gaimard), 1824. (**Pl 26, H**). **Glyphisodon lacrymatus** Quoy & Gaimard 1824, 388, Pl 62, f 7 (Guam). **Glyphidodon lacrymatus** Klunzinger 1871, 527 (Red Sea). **Abudefduf lacrymatus** Fowler & Bean 1928, 157 (Red Sea). Weber and de Beaufort 1940, 439 (Red Sea). Smith 1949, 283, Pl 59, f 764 (Inhaca). Fourmanoir 1954, 226 (Comores). Smith 1955a, 111 (Aldabra). Roux-Esteve and Fourmanoir 1955, 198 (Rec.Red Sea). Salvadori 1955,

65 (Red Sea). Roux-Esteve 1956, 87 (Red Sea). Fourmanoir 1957, 197 (Comores). Arnoult 1958, 78 (Aldabra). D XII 16-17. A II 13-14. P 2, 15-16, 2. Upper L.l. 19-21. Gillrakers 8+12-13. Depth 1.9, head 3-3.2 in body. Eye 3.5 in head, 1.0-1.2 in interorbital, equals snout, 1.8 in postorbital. Preorbital depth $\frac{1}{2}$ eye. Pectoral 1.1 in, pelvic 1.1 times head. Preopercle edge smooth. Teeth uniserial, edge truncate. Last dorsal spine longest, 2 in head. Soft dorsal rather pointed, mid rays longest, 1.2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than the longest rays, and 1.4-1.6 in head. Soft anal rounded, 6-7th rays longest, 1.3 in head. Pectoral tip not to above anal origin; pelvic with 1st ray filiform, to or beyond anal origin. Caudal lobes rounded. One scale between end of L.l. and base of last dorsal spine. Preorbital naked, suborbital with a row of scales. 3 rows of scales on cheek, lower preopercle flange scaly. Scales on snout to or beyond nostrils. In life, as Plate 26, H. Preserved: dark brown with fine light dots, caudal lighter, a dark blotch over pectoral base. 60-100mm. Inhaca northwards over the W.Indian Ocean and at all islands to Seychelles, nowhere abundant, usually from coral in deepish water.

14. **ABUDEFDUF DICKI** (Lienard), 1839. (**Pl 26 B & C**). **Glyphisodon dickii** Lienard 1839, 35 (Maur). Sauvage 1891, 432 (Maur). **Glyphidodon dickii** Bleeker & Pollen 1875, 84 (Madag). Gunther 1881, 232, Pl 125, C (Maur). **Abudefduf dickii** Baissac 1953, 3 (Maur). Smith 1955, 14, Pl II, f 15 (Inhaca). Smith 1955a, 892, Pl XVI, A (Aldabra). Baissac 1956, 338 (Maur). Arnoult 1958, 78 (Aldabra). D XII 16-17. A II 14-15. P 2, 14, 2. Upper L.l. 20-23. Gillrakers 5+13-14. Depth about 1.8, head 2.9-3.4 in body. Eye 3.1-3.5 in head, 1-1.3 in interorbital, equals snout, 1.6 in postorbital. Preorbital depth $\frac{3}{5}$ eye. Pectoral 1.1 in, pelvic 1.1 times head. Preopercle edge smooth. Teeth uniserial, edge truncate. Last dorsal spine longest, 1.4-2 in head. Soft dorsal pointed in adult, 5-6th rays longest, equals head. 1st anal spine exceeds $\frac{1}{3}$ of 2nd, which is shorter than the longest rays, and 1.8(-2.1 juv) in head. Soft anal rounded, 5-6th rays longest, 1.1(-1.6 juv) in head. Pectoral tip to or near anal origin (in juveniles beyond); pelvic with 1st ray filiform, to beyond anal origin. Caudal lobes rounded. 2 scales between end of L.l. and dorsal base. Part of preorbital and suborbital scaly. 3 rows of scales on cheek, lower preopercle flange scaly, edge naked. Scales on snout to before nostrils. Alive as in Pl 26, B & C, preserved, yellowish, with dark crossbar, pelvics dark, other fins light. 40-100mm. From Inhaca north over whole W.Indian Ocean to Seychelles, mainly deep water about reefs.

15. **ABUDEFDUF LEUCOGASTER** (Bleeker), 1846. (**Pl 29, D**). **Glyphisodon leucogaster** Bleeker 1846, 26 (Java). **Glyphidodon leucogaster** Gunther 1866, 83 (Zanz). Klunzinger 1871, 523 (Red Sea). Day 1878, 388, Pl 81, f 3 (Red Sea, E.Af). Day 1889, 390 (E.Af). **Abudefduf leucogaster** Fowler & Bean, 1928, 171 (Red Sea, Zanz). Steinitz & Ben-Tuvia 1955, 7 (Red Sea). Salvadori 1955, 66 (Red Sea). Roux-Esteve & Fourmanoir 1955, 198 (Rec. Red Sea). Roux-Esteve 1956, 86 (Red Sea). Fourmanoir 1957, 198, f 138, (Nossi-bé). D XIII 12-14. A II 13-14. P 2, 15, 1. Upper L.l. 15-16. Gillrakers 8+18. Depth 1.6, head 3-3.3 in body. Eye 2.7 in head, equals interorbital, 1.5 times snout, 1.0-1.2 in postorbital. Preorbital depth $\frac{1}{4}$ eye. Pectoral 1.1 times, pelvic 1.4 times head. Preopercle edge smooth. Teeth uniserial, edge truncate. 5-6th dorsal spines longest, 1.4-2 in head. Soft dorsal pointed, 3-5th rays longest, up to 1.5 times head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than the longest rays, 1.1-1.5 in head. Soft anal rounded, 5th ray longest, 0.8-1.3 in head. Pectoral tip to or beyond anal origin; pelvic with 1st ray filiform, up to as far as mid anal. Caudal lobes pointed. 1 scale between end of L.l. and dorsal base. Preorbital and suborbital both scaly. 2 rows of scales on cheek, scales on flange almost to lower edge. Scales on head to snout tip. Alive as in Pl 29, B; preserved similar, more or less uniform brown-yellow. Spinous dorsal dusky, darker apically, hind half of soft fin light. Caudal light centrally, the margins narrowly black. Anal dark in front, lighter behind, pelvic dusky. Small dark spot at pectoral axil. 65-120mm. Previously known from Pacific, now recorded from Baixo Pinda (Moz) northwards to Malindi and at all islands to Seychelles. Not uncommon.

16. **ABUDEFDUF SPAROIDES** (C & V), 1830. (**Pl 29, H**). **Glyphisodon sparoides** C & V, 1830, 469 (Reunion). Guichenot 1863, 25 (Reunion). **Glyphidodon sparoides** Peters 1855, 266 (Mozamb). Gunther 1866, 83 (Zanz). Peters 1876, 442 (Mozam), and 1883, 55 (Maur). Bleeker 1879, 15 (Maurit). Gunther 1879, 168 (Rodrigues). Pfeffer 1889, 22 and 1893, 18 (Zanz. E.Afr). Pellegrin 1907, 203 and 1914, 228 (Madag). Regan 1917, 459 (Natal). **Pomacentrus zanzibarensis** von Bonde, 1934, 452, Pl 23, f 5 (Zanz). **Abudefduf sparoides** Smith 1949, 283, f 765 (S.Afr). Baissac 1953, 3 (Maur). Fourmanoir 1954, 226 (Comores). Smith 1955a, 891 (Aldabra). Baissac 1956, 337 (Maur). D XIII 13. A II 12. P 2, 15, 1. Upper L.l. 20-21. Gillrakers 8+18-19. Depth 1.8-2, head 3-3.2 in body. Eye 3 in head, equals interorbital, exceeds snout, 1.3 in postorbital. Preorbital depth $\frac{1}{3}$-$\frac{1}{4}$ eye. Pectoral equals pelvic, exceeds head. Preopercle edge smooth. Teeth uniserial, close-set, edge truncate. 5th-last dorsal spine longest, 2-2.2 in head. Soft dorsal little pointed, 5-6th rays longest, 1.2 in head. 1st anal spine $\frac{1}{3}$-$\frac{2}{5}$ of 2nd, which is shorter than the longest rays, and 1.7-2 in head.

Soft anal rounded, 4-5th ray longest, 1.3-1.5 in head. Pectoral tip to or beyond anal origin; pelvic with 1st ray filiform, to or beyond anal origin. Caudal lobes pointed, fin deeply forked. 2 scales between end of L.1. and dorsal base. Preorbital and suborbital both scaly. 3 rows of scales on cheek, lower preopercle flange mostly scaly, hind margin naked. Scales on snout to before nostrils. Alive as in Pl 29, H. As preserved, brownish with large circular black blotch on peduncle. Edge of spinous dorsal and part of anal dusky, a small black mark in pectoral axil. 30-140mm. From Durban northwards over East Africa and at Zanzibar, also recorded from Mauritius area. Easily recognised under the water. Apparently not known outside the Western Indian Ocean. Records of **Sargus annularis var** (**non** Linn) (a completely different Mediterranean fish) in the Red Sea and Indian Ocean refer to **sparoides**.

17. **ABUDEFDUF MELAS** (C & V), 1830. (**Pl 30 C**). **Glyphisodon melas** C & V, 1830, 472 (Java). **Glyphisodon ater** C & V, 1830, 473 (Red Sea). **Glyphidodon melas** Klunzinger 1871, 526 (Red Sea). Day 1888, 801 (Red Sea). Day 1889, 388 (Red Sea, E.Afr). Sauvage 1891 (Rec.Madag). Pellegrin 1914, 228 (Madag). **Abudefduf melas** Fowler & Bean 1928, 161 (Madag, Red Sea). Smith 1955a, 891 (Aldabra). Steinitz & Ben-Tuvia 1955, 7 (Red Sea). Roux-Esteve & Fourmanoir 1955, 198 (Rec. Red Sea). Salvadori 1955, 66, Pl VI, f 4 (Red Sea). Roux-Esteve 1956, 86 (Red Sea). Fourmanoir 1957, 198, f 139 (Nossi-bé). D XIII 14. A II 13-14. P 2, 15, 1. Upper L.1. 17-18. Gillrakers 8+14. Depth 1.6-1.8, head 3.5 in body. Eye 3-4 in head, 1.2-1.5 in interorbital, equals snout, 1.6 in postorbital. Preorbital depth 2 in eye. Pectoral equals pelvic, equals head. Preopercle edge smooth. Teeth biserial, close-set, upper teeth rounded, lower truncate. 6th to last dorsal spines longest, about 2 in head. Soft dorsal rounded, mid rays longest, 1.2 in head. 1st anal spine about $\frac{1}{3}$ of 2nd, which is shorter than the longest rays, and 1.6 in head. Soft anal rounded, mid rays longest, 1.2 in head. Pectoral tip not to anal origin; pelvic with 1st ray little filiform, not or barely to anal origin. Caudal slightly emarginate, lobes rounded. 1 scale between end of L.1. and dorsal base. Preorbital, suborbital and whole of snout scaly. 3 rows of scales on cheek, lower preopercle flange scaly. In life and preserved almost uniform brown black, soft dorsal, caudal and anal darker. Up to 180mm. Bazaruto northwards along East Africa and throughout the Western Indian Ocean to Seychelles. Abundant about coral in deeper water, taken mostly by explosives. Often caught in traps. An unattractive fish that bloats within minutes in tropical seas, but is relished by the natives.

18. **ABUDEFDUF MELANOPUS** (Bleeker), 1856. (**Pl 28, H**). **Glyphisodon melanopus** Bleeker 1856, 82, and 1877, Pl 407, f 7 (E.Indies). **Glyphisodon xanthonotus** Bleeker, 1859, 357 and 1877, Pl 404, f 3 (E.Indies). **Glyphidodon melanopus** Gunther 1866, 83 (Zanzibar). **Abudefduf xanthonotus** Smith 1955a, 891, Pl XX, B (Aldabra). D XIII 13-14. A II 12-13. P 2, 14-15, 1-2. Upper L.1. 15-17. Gillrakers 6+13. Depth 1.7, head 3.1 in body. Eye 3 in head, 1.1 in interorbital, 1.5 times snout, 1.5 in postorbital. Preorbital depth $\frac{1}{4}$ eye. Pectoral equals head, pelvic 1.2 times head. Preopercle edge smooth. Teeth biserial, edge pointed, close-set, form cutting edge. 5th to last dorsal spines longest, subequal, 2.2 in head. Soft dorsal pointed, 5th ray longest, almost equals head. 1st anal spine $\frac{1}{3}$ of 2nd, which is 1.8 in head. Soft anal obtusely rounded, 5-6th rays longest, 1.4 in head. Pectoral tip to or beyond anal origin; pelvic with 1st ray filiform, to or beyond anal origin. Caudal emarginate. 2 scales between end of L.1. and dorsal base. Preorbital and suborbital wholly scaly, scaling connecting with that on snout, this wholly scaly. 2-3 rows of scales on cheek, lower preopercle flange scaly. Alive, as in Pl 28, H. Preserved, almost uniform yellowish, pelvics and front of anal dark. 7 specimens 45-80mm, Baixo Pinda, Zanzibar, Shimoni, Aldabra. Rare, one of the most exquisitely and vividly coloured of this group, free swimming, difficult to capture, a rarity in collections. It is curious that later workers have not noticed that **xanthonotus Bleeker** and **melanopus** Bleeker are identical. Bleeker's colours (1877) were clearly taken from faded fishes.

19. **ABUDEFDUF XANTHURUS** (Bleeker), 1853. (**Pl 30, G**). **Glyphisodon xanthurus** Bleeker 1853, 345 (Amboina). **Abudefduf xanthurus** Smith 1949, 283, Pl 51, f 763 (Durban). Not seen, based on painting of Durban specimen by Bell Marley. D XIII 14-15. A II 13-14. Upper L.1. 17. 9+17 gillrakers. Depth 1.8, head 3.2 in body. Eye about 3 in head, less than interorbital, equals snout. Pectorals 1.1 in, pelvics exceed head. Last dorsal spine longest, soft dorsal and anal pointed. Preorbital and suborbital with scales. 2 rows of scales on cheek, lower limb scaly. Olive generally, lighter behind, fins dusky olive, caudal lighter. To 120mm. Otherwise known only from the Pacific, this record based on a painting (Pl 30, G) of a Durban specimen.

20. **ABUDEFDUF GLAUCUS** (C & V), 1830. (**Pl 29, F**). **Glyphisodon glaucus** C & V 1830, 475 (Guam). **Glyphidodon modestus** Pfeffer 1893, 18 (E.Africa) **Abudefduf glaucus** Fowler & Bean 1928, 169 (E.Africa). Smith 1955a, 891 (Aldabra). D XIII 12. A II 11-12. P 2, 15, 1. Upper L.1. 15-16. Gillrakers 7+12-13. Depth 2.2-2.3, head 3.2 in body. Eye 3.5 in head, 1-1.1 in interorbital, equals snout, 1.5 in postorbital. Preorbital depth 2 in eye. Pectoral equals pelvic, 1.1 in head. Pre-

PLATE 29

A. *Abudefduf septemfasciatus* (C. & V.). 230 mm. Mahe. B. *Abudefduf saxatilis* (Linn). 200 mm. Inhaca. C. *Abudefduf sexfasciatus* (Lac.). 150 mm. Pinda. D. *Abudefduf leucogaster* (Blkr). 90 mm. Pinda. E. *Abudefduf sordidus* (Forsk). 230 mm. Mahe. F. *Abudefduf glaucus* (C. & V.). 80 mm. D'Arros. G. *Pomacentrus pavo* (Bloch). 90 mm. Zanz. H. *Abudefduf sparoides* (C. & V.). 120 mm. Aldabra. I. *Chromis nigrurus n. sp.* Type. 50 mm. Inhaca.

opercle edge smooth. Teeth biserial, edge rounded, widely spaced. Last dorsal spine little the longest, 2 in head. Soft dorsal acutely rounded, 6-7th rays longest 1.2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than the longest rays and 1.8 in head. Soft anal rounded, 6-7th rays longest, 1.3 in head. Pectoral tip not to anal origin; pelvic not to anus. Caudal lobes rounded. One scale between end of L.l. and dorsal base. Preorbital and suborbital naked. 3 rows of scales on cheek, whole preopercle flange naked. Whole top of snout naked. Colour alive as Pl 29, F. Preserved, uniform light yellowish, margin of anal and anus black. 30-95mm. Now recorded from Inhaca northwards over whole W.Ind.Ocean, to Seychelles. One of the commonest species, often left by tide in highest pools among coral. By some authors considered a synonym of **biocellatus** C & V, but it is quite clearly distinct at all stadia.

21. **ABUDEFDUF ZONATUS** (C & V), 1830. (**Pl 28, G**: **Pl 30, A**, banded var.). **Glyphisodon zonatus** C & V, 1830, 483 (N.Guinea). **Glyphisodon zonatus** Peters 1855, 456 (Mozamb). Klunzinger 1871, 527 (Red Sea). D XIII 12-13. A II 12-13. P 2, 14-15, 2. Upper L.l. 17-18. Gillrakers 7+15-16. Depth 2.2-2.3, head 3.5 in body. Eye 3.5 in head, 1-1.1 in interorbital, equals snout, 1.5-1.7 in postorbital. Preorbital depth 2 in eye. Pectoral 1.1-1.3 in, pelvic equals head. Preopercle edge smooth. Teeth biserial, edge truncate. 5th to last dorsal spines subequal, longest, 2 in head. Soft dorsal pointed behind, 7th ray longest, 1.5 in head. 1st anal spine $\frac{1}{3}$-$\frac{2}{5}$ of 2nd, which is shorter than the longest rays, and about 2-2.5 in head. Soft anal pointed behind, 7-8th rays longest, 1.4 in head. Pectoral tip not to anal origin, pelvic with 1st ray filiform, to or near anal origin. Caudal lobes rounded. One scale between end of L.l. and dorsal base. Preorbital and suborbital naked. 2-3 rows of scales on cheek, whole preopercle flange naked. Scales on snout not to nostrils. In life, bluish brown, with a prominent eye-width white bar from 4-7th dorsal spines, vertical across side under middle of pectoral, not to ventral surface. Fins yellowish, end of caudal, anal and pelvics dusky olive. Preserved, uniform brown yellow with the white bar less distinct. Juveniles have in addition a large black ocellus at the bases of the last 4 dorsal spines and on back, and a black blotch on the base of the last dorsal rays. These last two marks obsolete with age. An alternative phase is as in Plate 28, G. As preserved, almost uniform dark, soft dorsal basally distinctly dark, distally light. Numerous specimens, 50-100mm, from Baixo Pinda, Mozambique, north to Malindi and Zanzibar. By many authors this species is assigned to **biocellatus** Q & G, 1824. Both our field observations and later study indicate it as distinct. **A.biocellatus** is a smaller species of more slender body, with constantly different markings at all stadia, with fewer lower gillrakers, and with 1-2 rudimentary scales on the hind part of the suborbital. We found **zonatus** far more abundant than **biocellatus** in the W.Indian Ocean.

22. **ABUDEFDUF BIOCELLATUS** (Quoy & Gaimard), 1824. (**Pl 28, E**). **Glyphisodon biocellatus** Quoy & Gaimard 1824, 389 (Gaum). As **Glyphisodon** or **Glyphidodon** or **Abudefduf biocellatus** Quoy & Gaimard, 1824, or **brownrigii** Bennett, 1828, or **antjerius** C & V, 1830 or **unimaculatus** C & V, 1830, numerous records from 33°S in South and East Africa to the Red Sea and at the islands in the Western Indian Ocean. D XIII 12-13. A II 11-12. P 2, 16, 1. Upper L.l. 17-18. Gillrakers 5+12-13. Depth 2.5-2.7, head 3.5 in body. Eye 2.8-3 in head, equals interorbital, exceeds snout, 1.3 in postorbital. Preorbital depth $\frac{1}{2}$-$\frac{1}{4}$ eye. Pectoral 1.2 in, pelvic equals head. Preopercle edge smooth. Teeth biserial, edge rounded. 5th-last dorsal spines longest, about 2 in head. Soft dorsal rather pointed, 5-6th rays longest, 1.3 in head. 1st anal spine about $\frac{1}{3}$ of 2nd, which is shorter than the longest rays, and 2 in head. Soft anal rounded, 6-7th rays longest, 1.3 in head. Pectoral tip not to anal origin; pelvic with 1st ray filiform, to or beyond anal origin. Caudal lobes rounded. 1-2 scales between end of L.l. and dorsal base. Preorbital naked, suborbital with 2-3 cycloid scales behind eye. 3 rows of scales on cheek, whole preopercle flange naked. Scales on snout almost to nostrils. Live colour highly variable, often brilliant as shown in Pl 28, E. As preserved, yellowish with traces of the blue dorsal stripe, the ocelli dark. 30-70mm. From eastern South Africa over the Western Indian Ocean and at all islands to Seychelles. There has been much confusion in this and related forms. I find **biocellatus** to be a rather small, easily recognisable and exceptionally beautiful form with relatively elongate body, nowhere more than an occasional find, we have never seen a shoal, sometimes 4 or 5 in an isolated pool. It appears to be constantly differentiated from **zonatus** C & V, by more elongate body and by the presence of cycloid scales on the hind part of the suborbital.

23. **ABUDEFDUF XANTHOZONUS** (Bleeker), 1853. (**Pl 31, B**). **Glyphisodon xanthozona** Bleeker 1853, 283 (E.Indies). **Glyphidodon xanthozona** Peters 1876, 442 (Seych); and 1883, 55 (Maurit). Angot 1950, 460 (Madag). **Abudefduf xanthozona** Fourmanoir 1954, 226 (Comores). Smith 1955, 14, Pl II, f 16 (Moz), and 1955a, 891 (Aldabra). D XIII 12. A II 11-12. P 2, 14, 1. Upper L.l.

17-18. Gillrakers 8+12. Depth about 2.5, head 3.3 in body. Eye 3-3.5 in head, equals interorbital and snout, 1.5 in postorbital. Preorbital depth $\frac{1}{2}$ eye. Pectoral 1.4 in, pelvic equals head. Preopercle edge smooth. Teeth biserial, edge truncate. 5th-last dorsal spines longest, 2.2 in head. Soft dorsal little rounded, mid rays longest, 2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is 2.6 in head. Soft anal rounded, mid rays longest, 2 in head. Pectoral tip not to anal origin; pelvic with 1st ray filiform, to or near anal origin. Caudal little emarginate. 1 scale between end of L.1. and dorsal base. Preorbital naked, suborbital naked, 1-2 rudimentary scales behind. 3 rows on cheek, whole preopercle flange broadly naked. Scales on snout to nostril level. Alive as Pl 31, B. Preserved, similar, crossbars light, ocellus black. 30-70mm. From 32°S in S.Africa north along East Africa and at all islands to Seychelles, rare in South Africa, quite abundant in more tropical areas, at low tide among coral. Closely related to **biocellatus**, possibly a colour variation, but is more abundant. We rarely found the two together and came to consider **xanthozonus** as distinct.

24. **ABUDEFDUF IMPARIPENNIS** (Vaillant & Sauvage), 1875. (**Pl 31, D**). **Glyphisodon imparipennis** Vaillant and Sauvage, Rev.Mag.Zool.1875, III, 279 (Honolulu). D XII 15(14). A II 11(12). P 2, 16, 2. Upper L.1. 20-22. Gillrakers 3+8-9. Depth 2.1-2.2, head 3 in body. Eye 3 in head, 1.2 times interorbital, 1.5 times snout, 1.5 in postorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral 1-1.1, pelvic 1.3 in head. Preopercle edge smooth. Teeth lanceolate, uniserial, edge rounded. 4-5th dorsal spine longest, 1.6 in head, those behind shorten to the last, which is $\frac{1}{2}$-$\frac{2}{3}$ of 5th, forming deep notch with soft fin which is rounded, 6-7th soft rays longest, 1.7 in head. 1st anal spine little more than $\frac{1}{3}$ of 2nd, which is 1.6 in head. Soft anal rounded, 4-5th rays longest, 1.6 in head. Pectoral tip not to anal origin; pelvic with 1st ray little filiform, to or near anal origin. Caudal lobes rounded. 2 scales between end of L.1. and dorsal base. Preorbital naked, suborbital with 1 row of scales. 3-4 rows of scales on cheek, lower preopercle flange naked, except for 1 solitary concealed scale. Scales on snout almost to nostrils. Alive as in Pl 31, D; preserved almost uniform yellowish, including fins, top of head speckled darker, anus black. 35-60mm, Baixo Pinda, Moz, northwards along East Africa, Aldabra, to Seychelles, rare. Previously known only from the central tropical Pacific, this is a notable extension of distribution. I can find nothing in my specimens to justify distinction for them.

25. **ABUDEFDUF FALLAX** (Peters), 1855. (**Pl 30, I**). **Glyphidodon fallax** Peters 1855, 266 (Moz). Gunther 1862, 55 (Moz). Sauvage 1891, 434, 523 (Rec.Moz). Barnard 1927, 740 (Rec.Moz). D XIII 11. A II 11-12. P 2, 13-14, 1. Upper L.1. 16-17. Gillrakers 5+1+13-14. Depth 2.3-2.5, head 3.2-3.5 in body. Eye 3-3.2 in head, about equals interorbital, 1.4 times snout, 1.5-1.7 in postorbital. Preorbital depth 3-4 in eye. Pectoral about equals head, reaches to or near level of anal origin, pelvic slightly longer, reaches to beyond anal origin. Preopercle edge smooth. Teeth uniserial. 6th to 12th dorsal spines subequal, last longest, about 1.8 in head. Soft dorsal pointed, 5-6th rays filamentous, up to 1.5 times head. 1st anal spine about $\frac{1}{2}$ of 2nd, which is about 1.5-1.7 in head, soft fin pointed, 6-7th rays filamentous, up to 1.4 times head. Caudal lobes pointed, filamentous, upper usually longer. 1-2 scales between end of L.1. and dorsal base. Suborbital scaly; most of preorbital naked, 1-2 scales on hind end. Scales on snout to level of nostrils. Mainly 2 series of scales on cheek, also a row on lower flange, part of hinder flange narrowly naked. In life, body dusky dark grey with 3 bright violet spots above pectoral. Some above eye, in iris above, on opercle and preopercle. Cheek and snout with violet sheen. Vague dusky bar from pectoral to pelvic. Dark bar across pectoral base. Edge of spinous dorsal violet, with light blue submarginal line. Filaments to caudal, dorsal and anal black. Juveniles bluish with a blue line from snout to eye. Preserved, almost uniform yellow brown or darker, sometimes tips of body scales with dark marks. Most fins dark, black mark in pectoral axil, caudal lighter, usually more so with age. Sometimes indications of dark spot at origin of lateral line. Numerous specimens 40-95mm, Inhambane northwards along East Africa. This has been a mysterious species, not again described since Peter's original account of a century ago. Mr. G. Palmer has kindly compared one of my specimens with one of Peter's types in the British Museum, and reports them as identical.

26. **Abudefduf fuliginosus n.sp.**

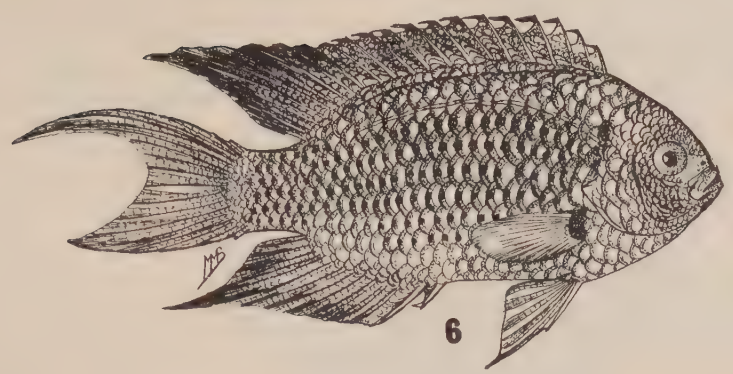

Fig. 6. **Abudefduf fuliginosus n.sp.** Type. 110mm.

D XIII 11. A II 12. P 2, 13, 1-2. Upper L.l. 16-17. Gillrakers 6-8+14-15. Depth 2.2-2.3, head 3.3-3.5 in body. Eye 3-3.8 in head, 1-1.2 in interorbital, exceeds snout, 1.8-2 in postorbital. Preorbital depth $\frac{1}{3}$-$\frac{2}{5}$ eye. Pectoral 1.2 in, pelvic equals head. Preopercle edge smooth. Teeth uniserial, edge notched. Last dorsal spine longest, 1.6 in head. Soft dorsal pointed behind, 6-7th rays longest, filamentous, up to 1.5 times head. 1st anal spine half of 2nd, which is shorter than the longest rays, and 1.6 in head. Soft anal pointed behind, 7th ray longest, filamentous, up to 1.5 times head. Pectoral tip not to anal origin; pelvic with 1st ray filiform, to near anal origin. Caudal lobes pointed, sometimes filamentous, upper longer. One scale between end of L.l. and dorsal base. Preorbital with 2-3 scales behind, suborbital scaly. 2 rows of scales on cheek, lower preopercle flange scaly. Scales on snout almost to nostrils. Alive, drab, dark spots on scales, light spots on head. Preserved, similar, a narrow dark bar over pectoral base, base of caudal dusky, distally light. 50-110mm, weedy, mangrove areas from Bazaruto northwards along East Africa and at Zanzibar. Rather drab small fish which I cannot align with any known species, distinguished from all others by dorsal and anal formulae, scaling on orbital bones and filamentous fins. The type, 110mm, from Mozambique Island.

DOUBTFUL SPECIES AND RECORDS

Abudefduf azysron (Bleeker), 1877. Rec. by Salvadori 1955, 66, Pl VI, f 2 from Red Sea, is not that species but possibly **bankieri** Richardson, 1846.

Glyphisodon bonang Bleeker, 1853. Rec. by Jatzow & Lenz from E.Africa. Does not agree with **bonang** Bleeker, probably juv. **biocellatus** Q & G, 1824.

Glyphidodon florulentus Gunther 1862, 49 (Ind.Ocean). Regan 1908, 230 (Seych). D XII 18. A II 15. Blue white ocelli and dark mark on hind part of spinous dorsal. Type without exact locality, fifteen lines in length, clearly a juvenile.

Glyphisodon limbatus C & V, 1830. Recorded from Reunion by Guichenot, 1863, 25, but Sauvage 1891, 434 states that the type apparently came from the Atlantic.

Glyphidodon maculipinnis Bliss, 1883, 55. Gudger 1929, 519. Borodin 1934, 44 (All Mauritius). Type lost, painting by Pike. D XIII 13. A II 13. Depth 2 in body. Blue spot in pectoral axil, blue line above maxilla, another above the eye, one from nostril to occiput. Blue streaks between dorsal spines. Not since reported.

Glyphisodon margariteus C & V, 1830. A small dried specimen from Ile de France.

Glyphisodon sculptus Peters, 1855, 266 (Mozambique) and 1883, 55 (Seychelles). Inadequately described, possibly the young of **notatus** Day, 1869, or **xanthurus** Bleeker, 1853.

10. **Hemiglyphidodon** Bleeker, 1877.

Bleeker 1877, 91.

Deep ovate body. Teeth uniserial incisors. None of the head bones serrate. Preorbital exceeds eye. 70-80 fine elongate rakers on first arch. Only the type.

HEMIGLYPHIDODON PLAGIOMETOPON (Bleeker), 1852. (**P1 32, I**). **Glyphisodon plagiometopon** Bleeker 1852, 67 (Singapore). **Glyphidodon plagiometopon** Peters 1876, 442 (Seych). Peters 1883, 55 (Maurit). Sauvage 1891, 523 (Rec). Not seen. D XIII 13-14. A II 14. P 2, 15. Upper L.l. 14-16. Gillrakers 30-35+38-48, lanceolate. Depth about 1.9, head about 3 in body. Eye 3.3-4 in head, less than snout and interorbital. Preorbital depth exceeds eye. Last dorsal spine longest, 1.7-2 in head. Pectorals and pelvics subequal to head. Caudal barely emarginate, lobes rounded. Preorbital and suborbital not spiny, naked. 2 rows on cheek, one on flange below. Alive, variable, stated to be dark slaty with rows of small purple spots along body. Fins brownish, with yellow or orange areas, marginally slaty or darker. A dark blotch at pectoral base often present. As preserved more or less uniform brown. To 190mm. A Pacific species, one of the largest. Reported from Seychelles and Mauritius last century, not in recent times, not found in E.Africa.

11. **Pristotis** Ruppell, 1835.

Type **P.cyanostigma** Ruppell, 1835. Elongate oval compressed body with about 30 series of ctenoid scales. L.l. ends below soft dorsal. Opercle with 2 divergent spines. Preopercle margin serrate behind, not beyond angle, subopercle with few serrae. Spinous longer than soft. 2 anal spines, the first short. Teeth incisiform, uniserial in each jaw, those in front enlarged. This genus has generally been sunk in **Pomacentrus** Lacepede, but it is clearly distinct from **Pomacentrus** in the enlarged front teeth and in the serrae on the subopercle.

PRISTOTIS CYANOSTIGMA Ruppell, 1835. (**P1 27, J**). Ruppell 1835, 128, P1 31, fig 5 (Red Sea). **Pomacentrus cyanostigma** Klunzinger 1871, 523 (Red Sea). D XIII 11-12. A II 12-13. P2, 13, 1. Upper L.l. 16-18. Gillrakers 9+19-20. Depth 2.7, head 3-3.2 in body. Eye 3 in head, 1.2 times snout and interorbital. Preorbital depth $\frac{1}{3}$ of eye. Pectoral 1.4 in, pelvic 1.5 in head. 5-7th dorsal spines longest, about subequal with 2nd anal spine. Soft dorsal pointed, anal low. Caudal lunate, upper lobe longer. 2 rows of scales on cheek, lower almost to margin of flange below, narrow outer margin of preopercle naked. Preorbital and suborbital naked. Scales on head to midway along interorbital, not to snout. In the front of each jaw are enlarged acuminate incisiform teeth, 4 across the front of the upper, and 6 across the front of the lower jaw. The lateral teeth are also uniserial, but much smaller and with rounded apices. In life mainly greenish, opercles and upper $\frac{2}{3}$ of body with blue spots. A blue stripe from eyes to snout. A black spot at pectoral base above. Fins fleshy hyaline, membrane of dorsal with 2 rows of sky blue spots, also base of tail. Iris brown, with golden ring. Belly pinkish. By the kindness of Dr. W. Klausewitz, I have examined two of Ruppell's types, 60 and 100mm total length. Red Sea only.

12. **Pomacentrus** Lacepede, 1803.

Dischistodus Gill, 1863. **Parapomacentrus** Bleeker, 1877. **Amblypomacentrus** Bleeker, 1877. **Eupomacentrus** Bleeker, 1877.

Type **Chaetodon pavo** Bloch, 1787. Ovoid to fairly elongate body with less than 30 series of ctenoid scales. Upper lateral line ends below soft dorsal. Preopercle margin with distinct spinules, other opercles smooth. Teeth compressed, incisiform, in 1-2 series, inner if present smaller. Dorsal with 12-14 spines, the hinder longest. Circumtropical, mainly about reefs and in weeds. 13 species recognised in the W.Indian Ocean.

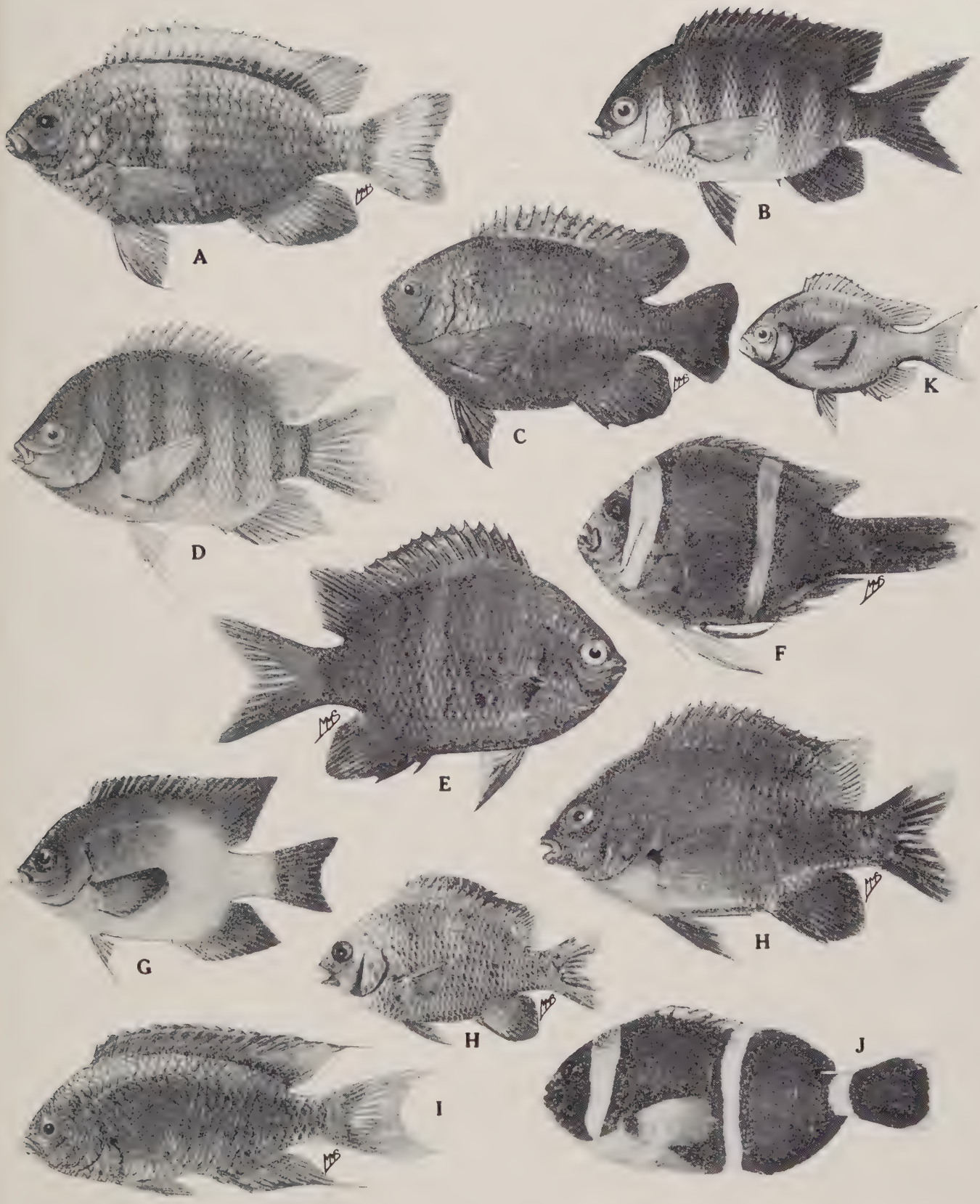

PLATE 30

A. **Abudefduf zonatus** (C & V). 92mm (Darros). B. **Abudefduf rhyncholepis** (Bleeker). After Blkr. C. **Abudefduf melas** (C & V). 128mm (Pinda). D. **Abudefduf bengalensis** (Bloch). After Bleeker. E. **Abudefduf notatus** (Day). 155mm (Mahé). F. **Amphiprion bicinctus** Ruppell. Type, 100mm (Red Sea). G. **Abudefduf xanthurus** (Bleeker). 100mm (Natal). H. **Abudefduf cingulum** (Klunz). 95mm (Bazaruto). H'. Same, dried to show scales. I. **Abudefduf fallax** (Peters). 70mm (Is.Mozamb). J. **Amphiprion chrysogaster** C & V. 111mm (Maur). Type of **mauritiensis** Schultz, after Schultz. K. **Chromis cinerascens** (C & V). After Sauvage.

KEY TO W. INDIAN OCEAN SPECIES

A. 11-12 dorsal spines ..... Group A

AA. 13-15 dorsal spines ..... B

B. Body depth distinctly less than half length ..... Group B

BB. Body depth not or barely less than half length ..... Group C

Group A

11-12 dorsal spines:

A. Preorbital depth exceeds eye ..... 1. **lividus**

B. Preorbital depth less than eye:

I. Depth 1.8-2. Suborbital scaly, spiny ..... 2. **nigricans**

II. Depth 2.5-2.6. D XII 15. A II 13 ..... 3. **madagascariensis**

Group B

13-15 dorsal spines. Body depth distinctly less than half length:

A. Centre of caudal light, broadly dark above and below ..... 4. **taeniurus**

B. Caudal markedly lighter than rest of fish:

I. Dark bar at caudal base. 14 dorsal spines ..... 5. **trichourus**

II. Whole caudal light. 13 dorsal spines ..... 6. **luteobrunneus**

C. Caudal not as A or B:

I. Spinous dorsal filaments dark, with light submarginal line. Usually 3 dark spots, one at pectoral base, one at L.l. origin, and on peduncle behind dorsal. Suborbital spiny ..... 7. **tripunctatus**

II. Short dark horizontal bars on scales. Suborbital smooth:

a. Depth 2.4. Peduncle yellow ..... 8. **pulcherrimus**

b. Depth 2.8. Peduncle blue ..... 9. **caeruleus**

III. Vertical bar on most scales. Suborbital spiny, naked. Caudal lobes long ..... 10. **pavo**

Group C

13-15 dorsal spines. Body depth not or barely less than half length:

A. 13 dorsal spines:

I. Caudal markedly lighter than rest of fish:

a. D XIII 14-15. Depth 1.8 ..... 11. **albicaudatus**

b. D XIII 16-17. Depth 2-2.1 ..... 6. **luteobrunneus**

II. Caudal not as in I: Suborbital spiny, naked:

a. 13 lower gillrakers ..... 12. **littoralis**

b. 17-19 lower gillrakers ..... 7. **tripunctatus**

B. 14-15 dorsal spines:

I. Caudal markedly lighter than body, with dark bar at base ..... 5. **trichourus**

II. Caudal more or less body shade:

a. Whole pectoral axil black, body otherwise uniform yellow. Preorbital naked ..... 13. **sulfureus**

b. At most a black spot at pectoral axil. Blue spot at origin of L.l. Preorbital with patch of scales ..... 12. **littoralis**

1. **POMACENTRUS LIVIDUS** (Bloch-Schneider), 1801. (**Pl 31 G**). **Chaetodon lividus** Bloch-Schneider, Syst.Ich.1801, 235 (Pacific). As **Pomacentrus lividus** or **punctatus** Q & G, 1824 has been recorded from Red Sea, E.Africa, Madagascar, Mauritius. Smith 1955a, 894 (Aldabra). Roux-Esteve & Fourmanoir 1955, 198 (Red Sea). D XII 15-16. A II 13. P 1, 16, 2. Upper L.l. 16-18. Gillrakers 8+17. Depth 2-2.2, head 3.2 in body. Eye 4.2 in head, 1.5 in interorbital, 1.5 in snout, 2-2.2 in postorbital. Preorbital depth 1.3 times eye. Pectoral 1.3, pelvic 1.4 in head. Hind edge preopercle with numerous short blunt serrae. Preorbital naked, ends in 1-2 blunt spines, suborbital with 10-12 blunt serrae, scaly, 3-4 series. Teeth uniserial, edge little notched. Last dorsal spine longest, 2 in head. Soft dorsal rounded, mid rays longest, 1.4-1.5 in head. 1st anal spine about $\frac{1}{3}$ of 2nd, which is shorter than longest rays and 2.2-2.5 in head. Pectoral and pelvic not to anal origin. Caudal lobes rounded, upper longer. Scales on snout almost to nostrils. 3 rows of scales on cheek, lower limb naked. Live colour dull as in Plate 31 G. As preserved, almost uniform brown, including fins, a dark blotch at base of last dorsal rays. Up to 140mm. Specimens from Baixo Pinda, Zanzibar, Mauritius. Not common in East Africa.

2. **POMACENTRUS NIGRICANS** (Lacepede), 1803. (**Pl 31**, **F** (col), **Pl 27**, **E** adult). As **Pomacentrus nigricans** or **scolopsis** or **taeniops** or **scolopseus** has been recorded from a wide area of the Western Indian Ocean. **Pomacentrus nigricans** Fourmanoir 1954, 226 (Comores). Smith 1955, 16 (E.Africa) and 1955a, 894 (Aldabra). **Pomacentrus noir** Lienard 1839, 34 (Maur). **Pomacentrus nigripinnis** Bliss 1883?, **nomen nudum** on drawing by Pike.* **P.ater** Bleeker 1879, 15, Pl II. Sauvage 1891, 428. D XII 15-16. A II 12-13. P2, 15-16, 2. Upper L.l. 18-20. Gillrakers 8-9+12-14. Depth 1.8-2, head 3-3.2 in body. Eye 3-4 in head, 1-1.2 in interorbital, equals or greater than snout, 1.2-1.8 in postorbital. Preorbital depth $\frac{1}{2}$-$\frac{3}{5}$ of eye. Pectoral equals pelvic, 1.1-1.2 in head. Preorbital naked, ends in blunt spine, suborbital scaly, edge with curved spines. Teeth uniserial, edge truncate. Last dorsal spine longest, 1.8 in head. Soft dorsal rounded, mid rays longest, 1.2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than longest rays and 1.5-1.7 in head. Pectoral tip not to anal origin, pelvic with 1st ray filiform, near or to anal origin. Caudal lobes rounded, upper larger. Scales on snout to before nostrils. 3 rows of scales on cheek, lower limb naked. In life brown, with broad lighter area across slightly behind middle of length. Pectoral axil and base of last dorsal rays black. Fins dark. The small young are darkish in front, hinder parts yellow, including caudal. 40-130mm. From Inhaca north, abundant over whole Western Indian Ocean, ranges over much of Indo-Pacific. Juveniles less than 45-50mm have a smooth suborbital and preopercle edge, serrae develop only beyond this length. Easily recognised in life by drab colour, rounded caudal lobes and plump body. Soon distends from internal decomposition. **P. albifasciatus** Schlegel and Muller, is a synonym of **nigricans**. By kindness of Dr. Giles W. Mead I have been able to examine 2 specimens, 115mm and 122mm length, of **Pomacentrus nigripinnis** Bliss, from Pike's Mauritius collection in Museum of Comparative Zoology, Harvard. Except that one has D XIII 15, these are clearly identical with **nigricans.**

3. **POMACENTRUS MADAGASCARIENSIS** Sauvage, 1882. (**Pl 27**, **A**). Sauvage, Bull.Soc.Philom. 174, Pl VI and 1891, 429, Pl 46, f 3, (Madag.Reunion). D XII 14. A II 13. P 17. Upper L.l. 19. 7+9 gillrakers. Depth 2.6, head 3.4 in body. Eye 3.1 in head, 1.3 times interorbital, 1.4 times snout, 1.7 in postorbital. Preorbital depth 2 in eye. Pectoral 1.2 in, pelvic 1.1 times head. Preorbital naked, edge smooth, suborbital smooth below with fine points behind, and weak scales behind. Teeth uniserial, notched. Last dorsal spine longest, 1.6 in head. Soft dorsal pointed behind, 7th ray longest, 1.1 in head. 1st anal spine $\frac{2}{5}$ of 2nd, which is 2 in head, and shorter than longest rays, soft fin pointed behind, 7-8th ray longest, 1.1 in head. Pectoral tip not to anal origin, pelvic with 1st ray filiform, to well beyond anal origin. Caudal lobes pointed, upper longer. Scales on snout not to nostrils. 3 rows on cheek, few rudimentary scales on lower preopercle limb, mostly naked. Uniform brown. Distinct blue spots on head about eye, along back above and about L.l., and a patch on front of anal. Total length 75mm, standard length 55mm. No. 1996, the type from Madagascar, kindly lent by Dr. J. Guibe. Appears to be distinct from all species found in East Africa.

4. **POMACENTRUS TAENIURUS** Bleeker, 1856. (**Pl 31 A**, **Pl 27**, **I**). Bleeker 1856, 51 and 1877, pl 408, f 2 (Amboina). **Pomacentrus opercularis** (**non** Gnthr) Smith 1949, 282, Pl 50, f 758 (Inhaca). **P.inhacae** Smith, 1955a, 894 (E.Africa to Aldabra). **Glyphidodon amboinensis** (**non** Blkr) Jatzow & Lenz, 1898, 519 (Zanz). D XIII 11. A II 10-11. P 2+14+2. Upper L.l. 17-18. Gillrakers 7-8+14-15. Depth 2.3, head 3-3.2 in body. Eye 3.5 in head, equals interorbital, 1.3 times snout, 1.7 in postorbital. Preorbital depth 3 in eye. Pectoral equals head, pelvic 1.2 times head. Preorbital scaly, edge smooth, suborbital edge hidden, fully scaly, preopercle edge indistinctly serrate, only at angle in small specimens. Teeth biserial, edge truncate. Last dorsal spine longest, 2 in head. Soft dorsal pointed behind, 6th-7th rays longest, filiform, up to 1.3 times head. 1st anal spine $\frac{1}{3}$-$\frac{2}{5}$ of 2nd, which is shorter than longest rays and 2 in head. Soft fin pointed, 6-7th ray filiform, up to 1.1 times head. Pectoral tip barely to anal origin, pelvic with 1st ray filiform, beyond anal origin.

* Gudger 1929, 525.

Caudal lobes pointed, filiform, upper longer. Scales on snout to nostrils. 3 rows of scales on cheek, lower limb scaly. In life as in Pl 31 A. As preserved, similar, as in Pl 27, I, yellow parts lighter, black spot at pectoral axil and at L.l. origin. 25-85mm. From Inhaca northwards in the W.Indian Ocean to all islands. Indo-Pacific.

5. **POMACENTRUS TRICHOURUS** Gunther, 1866 (**Pl 28, B. Pl 27, C**) Gunther 1866, 146, Pl XVII, f 5 (Zanzibar). **Pomacentrus trichopterus** Playfair (**sic**) in Sauvage 1891, 523 (Rec). D XIV 14-15. A II 15-17. P 1, 14-15, 1. Upper L.l. 18-19. Gillrakers 6-7+13-14. Depth 1.9-2.2, head 3.1-3.5 in body. Eye 3-3.5 in head, equals interorbital, 1.2-1.5 times snout, 1.2-1.6 in postorbital. Preorbital depth 2 in eye. Pectoral rounded, equals head, pelvic equals head. Preorbital naked, ends in 2 spines, deep notch to suborbital, which is naked, edge with 4 or more large serrae. Hind edge preopercle with 18-20 fine serrae, 1 or 2 at angle usually larger, lower edge crenulate. Teeth biserial in front, edges rounded. Last dorsal spine longest, 1.6 in head. Soft dorsal rounded, mid rays longest, 1.3-1.5 in head. 1st anal spine $\frac{1}{2}$ of 2nd, which is shorter than longest rays and 1.6 in head. Pectoral tip near to beyond anal origin, pelvic with 1st ray filiform, to beyond anal origin. Caudal concave behind. Scales on snout almost to nostrils. 3-4 rows of scales on cheek, lower limb scaly. Live colour: As in Pl 28, B. Preserved, brown with odd dark marks on scales, pupil size black spot at edge of shoulder, pectoral base wholly black. Two light lines along dorsal and anal, both fins dark. Caudal base with black bar, most of fin light, edge dusky. Pectoral light, pelvic dark distally. Some juveniles with dark ocellus, less than eye, from middle of 4th-7th soft dorsal rays downwards, obsolete with age. Described from numerous specimens, 65-100mm. Baixo Pinda, Ibo, Zanzibar, Tanga. Coral. East Africa only.

6. **Pomacentrus luteobrunneus n.sp.** (**Pls 26, F** and **27 F**).

D XIII 16-17. A II 13. P 1, 16, 2. Upper L.l. 20. Gillrakers 2-3+12. Depth 2-2.1, head 3.1-3.3 in body. Eye 3.2-3.5 in head, 1.2 in interorbital, equals snout, 1.8-2 in postorbital. Preorbital depth 2 in eye. Pectoral 1.1-1.2 in, pelvic equals head. Preorbital naked, edge smooth, suborbital scaly, edge with about 10 fine serrae. Preopercle hind edge with 17-20 fine serrae, lower edge crenulate. Teeth uniserial, edge truncate. Last dorsal spine longest, 1.7 in head. Soft dorsal rounded, mid rays longest, 1.3 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than longest rays and 1.7 in head. Pectoral tip not to anal origin, pelvic with 1st ray filiform, not to anal origin. Caudal lobes rounded, upper longer. Scales on snout to before nostril, 2 rows of scales on cheek to angle, lower limb scaly. Live colour: as in Plate 26, F. Fins dark, pectoral axil with darker spot. As preserved, similar. Two specimens, one, 95mm, from Aldabra, the other 115mm from Astove, this being the type. Differs from all other similarly marked species in radial formulae.

7. **POMACENTRUS TRIPUNCTATUS** C & V, 1830 (**Pl 26, I & J, Pl 27, H**). As **Pomacentrus tripunctatus** C & V; or **bankanensis** Bleeker, 1853, or **biocellatus** Ruppell, 1835: or **taeniops non** C & V, 1830: or **trilineatus** C & V, 1830; numerous records from over a wide area of the Western Indian Ocean, also Red Sea. **Pomacentrus agassizi** Bliss 1883, 53. Borodin 1934, 44 (Both Mauritius). **Pomacentrus littoralis** (**non** C & V) Smith 1955, 16, Pl II, fig 17 (Moz), and 1955a, 894 (Aldabra). D XIII (XII-XIV) 13-15. A II 13-15. P 2, 14, 1. Upper L.l. 15-18. Gillrakers 8-9+17-19. Depth 1.9-2.2, head 3-3.4 in body. Eye 2.5-3.5 in head, 0.8-1.1 in interorbital, exceeds, to 1.1 in snout. 1.2-1.8 in postorbital. Preorbital depth in adults about $\frac{2}{3}$ eye. In adults pectoral equals pelvic, 1.2 in head, pelvic filamentous in young. Preorbital and suborbital naked, smooth in young, with age both develop spines, the preorbital in all but the young ends in 1-3 strong spines, the suborbital edge strongly serrate. Teeth biserial, edge truncate. Last dorsal spine longest, 1.7 in head. Soft dorsal acutely rounded, mid rays longest, 1.2-1.3 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than the longest rays and 1.8-2 in head. Pectoral tip almost to anal origin, pelvic with 1st ray filiform in young, to beyond anal origin, shorter in adults. Caudal lobes rounded, subequal. Scales on snout to nostrils. Two rows of scales on cheek at angle, 3 in front, lower limb naked or partly scaly. Life colour highly variable, in young often as in Pl 26, I, J, the large ocellus over base of last dorsal spines becomes obsolete with age. With age body becomes mauve with bluish or violet edges to scales, some specimens with a blue dot in each scale, and some are more yellowish, these often have 2 light lines along anal. Many larger specimens dark mauve to dusky, with or without spots, fins dusky, but light submarginal line on dorsal always present. Caudal and pectoral usually lighter than other fins. Most have pectoral axil dark, some type of dark spot at shoulder and one on peduncle behind last dorsal rays. Many specimens, 25-110mm, from Inhaca northwards in East Africa and at all islands to Seychelles. One of the most abundant and widespread species, from its varied livery often a puzzle to systematists, can always be told in young by markings,

in adults by characteristic light submarginal line along dorsal, and strongly serrated pre- and suborbital, usually also by the three dark spots, described above, though one or more of these often obscure. By kindness of Dr. Giles W. Mead I have been able to examine a specimen of **P.agassizi** Bliss, 1883 from Mauritius, which is this species.

8. **Pomacentrus pulcherrimus n.sp.** (**Pl 28, A**)

D XIII (13) 14-15. A II 15-16. P 2, 14-15, 1. Upper L.l. 17-18. Gillrakers 6+14. Depth 2.4, head 3.2-3.4 in body. Eye 3.2 in head, equals interorbital, 1.2-1.5 times snout, 1.7-2 in postorbital. Preorbital depth $\frac{1}{4}$-$\frac{1}{3}$ eye. Pectoral 1.1-1.2 in head, pelvic 1.2 times head. Preorbital naked, ends in blunt spine, suborbital edge with spinules or almost smooth, mostly naked, one scale behind eye. Preopercle edge with fine jagged spines. Teeth biserial, edge rounded truncate. Last dorsal spine longest, 2 in head. Soft dorsal pointed, mid rays longest, 1.4-1.5 in head. 1st anal spine $\frac{2}{5}$ of 2nd, which is slender, 2.8 in head. Anal pointed in hinder half, longest rays 1.6 in head. Pectoral tip near or to anal origin, pelvic with 1st ray filiform, to or beyond anal origin. Caudal lobes moderately rounded, sometimes tips filiform. Scales on snout to nostrils. 3 rows of scales on cheek, lower limb scaly. Live colour: chiefly as in Pl 28, A, but fairly variable, the extent of the yellow on the tail may vary, in some specimens the tail is reticulate with mauve, and there are one or two light lines along the margin of the dorsal and anal. As preserved, variably light to dusky, darker in front, lighter behind, 1-3 short dark bars on most scales more clearly visible near peduncle but none near caudal base. A dark spot at shoulder and at axil of pectoral. In some specimens soft dorsal, anal and caudal dusky. 20-90mm, from Bazaruto northwards over East Africa and at all islands to Seychelles. Nowhere abundant, sometimes found in small shoals in one locality. One of the most beautiful of this group. Close to **coelestis** Jordon and Starks, 1901 from Japan, but has always 15-16 anal rays. **Pomacentre bleu et jaune** Lienard, Sept.Rep.Soc.Hist.Nat.Maurice 1836, 63 is possibly this species but the description is not sufficient for diagnosis.

9. **POMACENTRUS CAERULEUS** Q & G, 1824, 397, Pl 64, fig 3. (**Pl 27, B**). D XIII 15. A II 16. P 2, 15, 1. Upper L.l. 19. Gillrakers 7+16. Depth 2.8, head 3.5 in body. Eye 3.4 in head, 1.1 in interorbital, exceeds snout, 1.8 in postorbital. Preorbital depth $\frac{1}{3}$ eye. Pectoral 1.0, pelvic 1.1 in head. Preorbital naked, edge ends in spine, suborbital edge smooth, one scale behind. Preopercle margin serrate. Teeth biserial, edge rounded. Last dorsal spine longest, 1.5 in head. Soft dorsal pointed, 8-9th rays longest, 1.2 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than longest rays and 1.6 in head. Soft fin pointed behind. Pectoral tip barely to anal origin, pelvic with 1st ray filiform, reaches anal origin. Caudal lobes pointed. Scales on snout to nostrils. 2 rows of scales on cheek, lower limb scaly. More or less uniform blue brown, with irregular mottlings on head, nape and shoulder, and short dark marks on many scales of back. Dark bars at base of scales on flanks. Dark spot at shoulder and at pectoral axil. (Light blotch on peduncle in fig. in Pl 27, B is due to reflection). The type No. 8250, Ile de France. Total length, 103mm, standard length 81mm, in excellent condition, agrees well with Q & G's illustration. Kindly lent by Dr. J. Guibe. Not found in East Africa.

10. **POMACENTRUS PAVO** (Bloch), 1787 (**Pl 29 G** (col) and **Pl 27, G**). **Chaetodon pavo** Bloch 1787, 60 (E.Ind). As **Pomacentrus pavo** numerous records from Durban northwards along E.Africa, Zanzibar, Aldabra, Madagascar and Comores. D XIII 13-14. A II 13. P 2, 13-14, 1. Upper L.l. 16-17. Gillrakers 6-7+15. Depth 2.2-2.3, head 3.5-4 in body. Eye 3-4 in head, 1-1.3 in interorbital, equals snout, 1.6-2 in postorbital. Preorbital depth in adult little less to more than $\frac{1}{2}$ eye. Pectoral equals pelvic, equal head. Preorbital naked, ends in 1-2 spines, suborbital naked, feebly spiny in juveniles, strongly so in adults. Preopercle margin strongly serrate. Teeth biserial, edge truncate. Last dorsal spine longest, 1.5-2 in head. Soft dorsal pointed, hinder rays longest, 1.1-1.2 in head to longer than head. An apical filament on 1st anal spine, which is $\frac{1}{2}$ of 2nd, which is shorter than longest rays and 2 in head. Soft fin pointed, hinder rays longest, shorter to longer than head. Pectoral tip to level anal origin, pelvic with 1st ray filiform, to or beyond anal origin. Caudal lobes pointed, upper filamentous. Scales on snout to nostrils. Two rows of scales on cheek at corner, 2-3 in front, lower limb mostly scaly. Colour in life exceedingly brilliant, iridescent, as adult in Pl 29 G. Preserved, (Pl 27, G), uniform brown, with dark mark at shoulder, fins light, margin of dorsal and anal darker. Many specimens, 40-120mm, from Durban northwards in East Africa and at neighbouring islands, nowhere abundant, only occasional specimens mainly by blasting in deeper water, not found at Seychelles group. A beautiful fish, impossible to portray adequately, the iridescent blue of life rapidly fades to a golden yellow.

PLATE 31

A. *Pomacentrus taeniurus* Blkr. 100 mm. Kifuki. B. *Abudefduf xanthozona* (Blkr). 65 mm. Inhaca. C. *Abudefduf cingulum* Klunz. 50 mm. S. Africa. D. *Abudefduf imparipennis* (V. & S.). 53 mm. Pinda. E. *Chromis pembae n. sp.* Type. 125 mm. Pemba. F. *Pomacentrus nigricans* (Lac). 53 mm. Malindi. G. *Pomacentrus lividus* (Schn). 150 mm. Pinda. H. *Abudefduf annulatus* (Peters). 70 mm. Pinda. I. *Chromis dimidiatus* (Klunz). 70 mm. Inhaca. J. *Dascyllus reticulatus* (Rich). 60 mm. Inhaca. K. *Lepidozygus anthioides* Smith. Type. 100 mm. Astove.

11. **POMACENTRUS ALBICAUDATUS** Baschieri-Salvadori, 1955. (**Pl 32, M**). Baschieri-Salvadori 1955, 64, Pl IV, f 4 (Red Sea). Not seen. D XIII 14-15. A II 14-15. L.l. 16+8. 20 gillrakers. Depth 1.8 (stated 1.2), head 3 in body. Eye 3 in head, 1.1 times interorbital. Live colour; dark brown, almost black above, sometimes blue spots on operculum and along above lateral line. Pupil size black spot at origin of lateral line. Dorsal, anal and pelvic brown, pectoral lighter, caudal wholly white: as preserved similar. 23-44mm. Red Sea.

12. **POMACENTRUS LITTORALIS** C & V, 1830. C & V 1830, 425 (Java). Numerous records without description from E.Africa, Madagascar, Mauritius. Not seen. D XIII-XIV 13-15. A II 14-15. P 2, 15-16. Upper L.l. 16-18. 8+13 gillrakers. Depth 1.8-2, head 3.2 in body. Eye 3-4 in head, 1-1.3 interorbital, equals snout. Teeth uni- or biserial, truncate. Preorbital with patch of scales, ends in 1-2 spines, suborbital strongly spiny, naked. Preopercle with strong spines. Scales on head to between nostrils, 2-3 rows on preopercle, flange scaly. Last dorsal spine longest, soft fin rounded. 1st anal spine less than half of 2nd, which equals last dorsal spine. Pectoral 1.1 in head, pelvics equal head. Caudal lobes rounded. Colour in life according to Bleeker 1877, Pl 404, f 8, brown, head lighter, caudal and anal yellowish, a blue spot at origin of L.l. As preserved similar, sometimes a black spot at pectoral axil and on top of peduncle. To 125mm. We found no specimens in the W.Indian Ocean. Supposed to differ from **tripunctatus** C & V, 1830 in having a few scales on the preorbital, but appears otherwise identical. Sauvage 1891, 426, Pl 46, f 2 described C & V's types (from Java) but shows no scales on preorbital. I have come to doubt whether **littoralis**, if it is valid, occurs in the Western Indian Ocean. My supposed Aldabra specimen (Smith 1955a,894) proves to be **tripunctatus** C & V. Day 1878, 383 describes **littoralis** from the Indian region, but his description is clearly that of **tripunctatus**. It seems not unlikely that **littoralis** is not distinct from **tripunctatus** C & V, which is a highly variable species.

13. **POMACENTRUS SULFUREUS** Klunzinger, 1871 (**Pl 28, C**). **P.sulfureus** Klunzinger 1871, 521 (Red Sea). Fourmanoir 1954, 226 (Comores). Roux-Esteve & Fourmanoir 1955, 198 (Rec.Red Sea). Salvadori 1955, 63, Pl IV, f 3 (Red Sea). Roux-Esteve 1956, 85 (Red Sea). **P.pikei** Bliss 1883, 54. Borodin 1934, 44. Baissac 1953, 3. Baissac 1956, 336 (All Mauritius). **P.grandidieri** Steindachner 1891, 372, Pl II, f 3 (Madag). **P.scintillans** Smith1955a, 895, Pl XX, A (Aldabra). D XIV 13(14). A II 14(15). P 2, 14, 2. Upper L.l. 17-18. Gillrakers 3-4+13-14. Depth 2, head 3.3 in body. Eye 3.1 in head, 1.1 in interorbital, 1.5 times snout, 1.5 in postorbital. Preorbital depth $\frac{1}{3}$-$\frac{1}{2}$ eye. Pectoral equals pelvic, 1-1.1 times head. Preorbital naked, ends in long spine, suborbital with irregular spines, naked. Preopercle hind edge with fine spinules, lower edge smooth. Teeth uniserial, edge truncate. Last dorsal spine longest, 2 in head. Soft dorsal pointed, 4-6th rays longest, 1.4 in head. 1st anal spine $\frac{1}{3}$ of 2nd, which is shorter than longest rays and 2.5 in head. Soft anal pointed, mid hind rays longest, 1.7 in head. Pectoral tip to or beyond anal origin, pelvic with 1st ray filiform, to or beyond anal origin. Caudal lobes rounded. Scales on snout to beyond nostrils. 3 rows of scales on cheek, lower limb scaly. Colour in life as in Plate 28, C. Preserved, uniform yellow brown, whole pectoral base black. Numerous specimens, 25-100mm, from 21°S in East Africa northwards over Western Indian Ocean and all islands to Seychelles. Abundant about coral in deep water. In young below 40mm the suborbital is only crenulate and the preopercle edge feebly spiniform.

Doubtful Species

caeruleoluteus Lienard, 1836 (Mauritius). As "Pomacentre bleu et jaune," Sauvage 1891, 430. Possibly identical with **pulcherrimus n.sp.** but data not in agreement, e.g. D XIII 13: A II 14, instead of D XIII 14-15; A II 15-16 for **pulcherrimus**.

melanochir Bleeker, 1877. An East Indian species recorded by Fowler 1923, 41 from Madagascar. The **melanochir** (**non** Bleeker) recorded by Sauvage 1891, 428 from Madagascar is **nigricans** Lacepede. **melanopterus** Bleeker, 1852. An East Indian species, recorded by Lienard, 1839, 34: by Bleeker, 1879, 2, fig; and by Baissac 1956, 334, all from Mauritius.

pristiger C & V, 1833. Recorded by Guichenot 1863, 25 from Reunion, and by Baissac 1956, 334 from Mauritius. C & V's 5" type, from Mauritius, figured by Sauvage 1875-91, Pl XLVI, f 4, is probably **nigricans** Lacepede.

Pomacentrus species, Fourmanoir 1957, 193, Comores. 72mm. D XIII 16. A II 14. L.l. 27-28. Dark green; scales with four blue spots, bordered green. Black spot at origin L.l. Pectoral yellow, other fins dusky. Possibly **tripunctatus** C & V.

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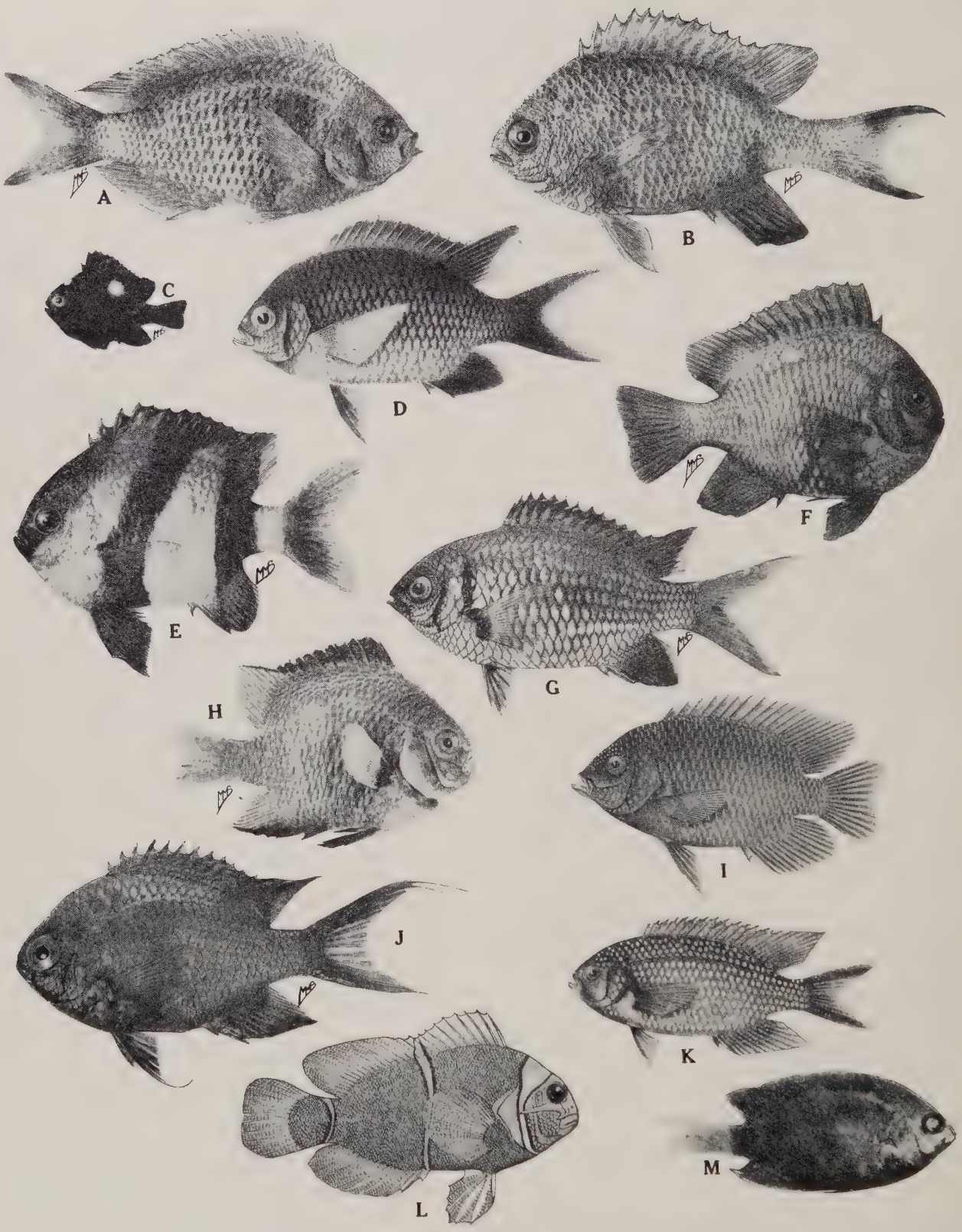

PLATE 32

A. **Abudefduf dasygenys** Fowler. 124mm (Inhaca). B. **Lepidochromis brunneus n.sp**. Type, 75mm (Pinda). C. **Dascyllus trimaculatus** (Ruppell). 25mm (Pinda). D. **Chromis xanthochir** Bleeker. After Blkr. E. **Dascyllus aruanus** (Linn). 90mm (Pinda). F. **Dascyllus trimaculatus** (Ruppell). 105mm (Pinda). G. **Chromis opercularis** (Gnthr). 145mm (Pinda). H. **Dascyllus marginatus** (Ruppell). 60mm (Red Sea). I. **Hemiglyphidodon plagiometopon** Bleeker. After Blkr. J. **Chromis agilis n.sp**. Type, 70mm (Is.Darros). K. **Abudefduf anabatoides** (Bleeker). After Blkr. L. **Premnas biaculeatus** Bloch. 100mm. After Weber & de Beaufort. M. **Pomacentrus albicaudatus** Salvadori. Type, 44mm (Red Sea). After Salvadori.

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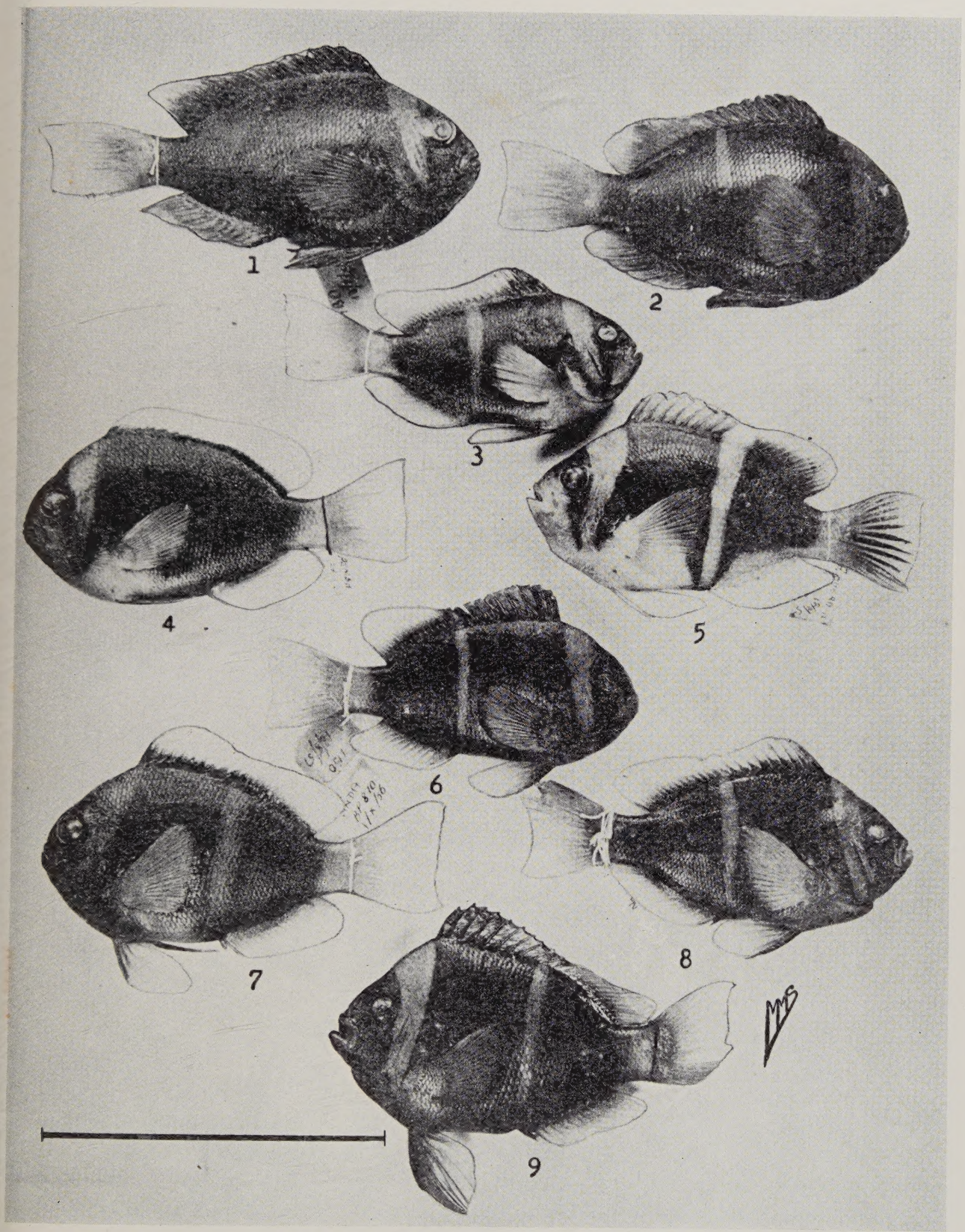

PLATE 33

Amphiprion ephippium (Bloch), to illustrate variation in markings. Nos. 1, 2, 7, Pinda (Mozambique). Nos. 3 & 6, Ibo (Moz.). No. 5, Aldabra. Nos. 4 & 9, Pemba. No. 8, Mombasa. The line indicates 100mm.

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